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BEST AVAILABLE COPY

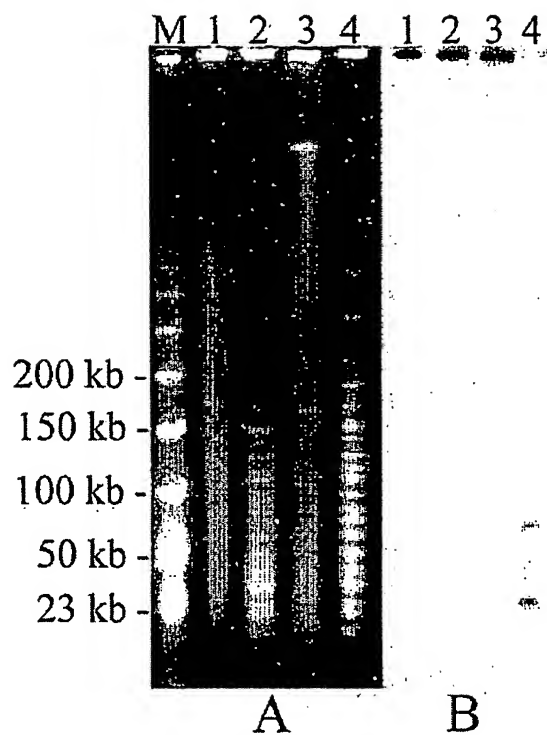


FIGURE 1A

FIGURE 1B

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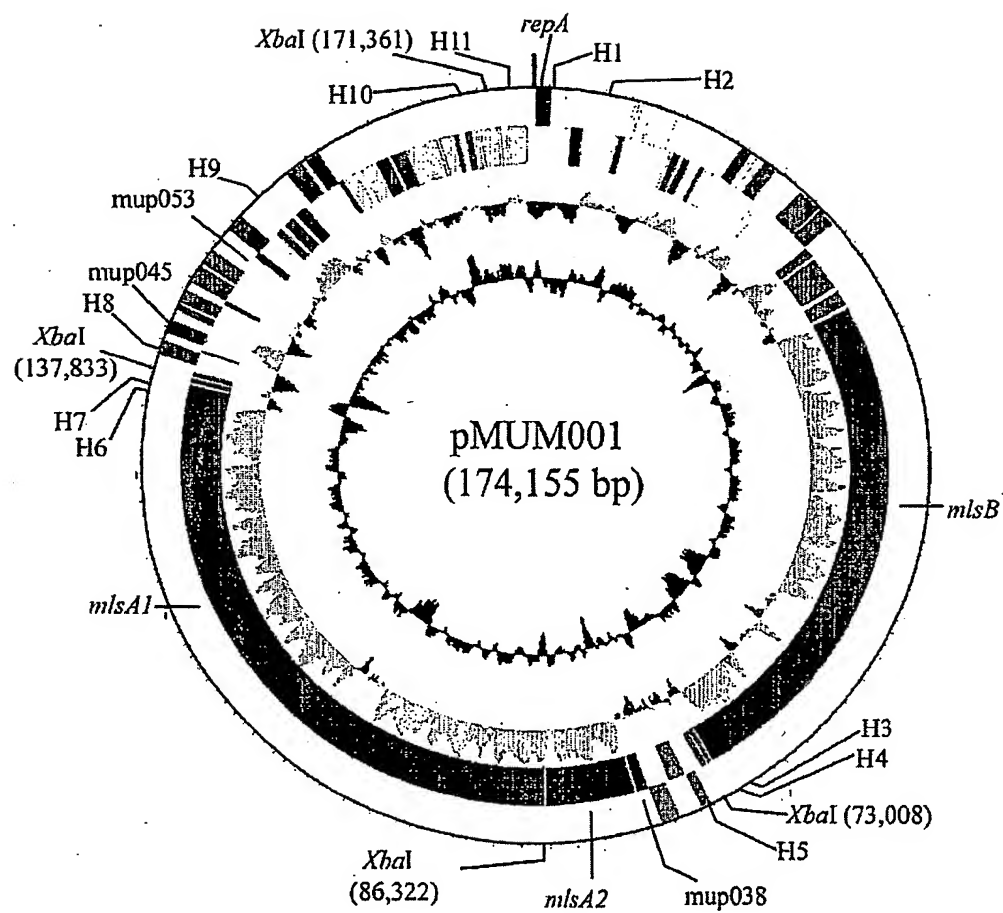


FIGURE 2

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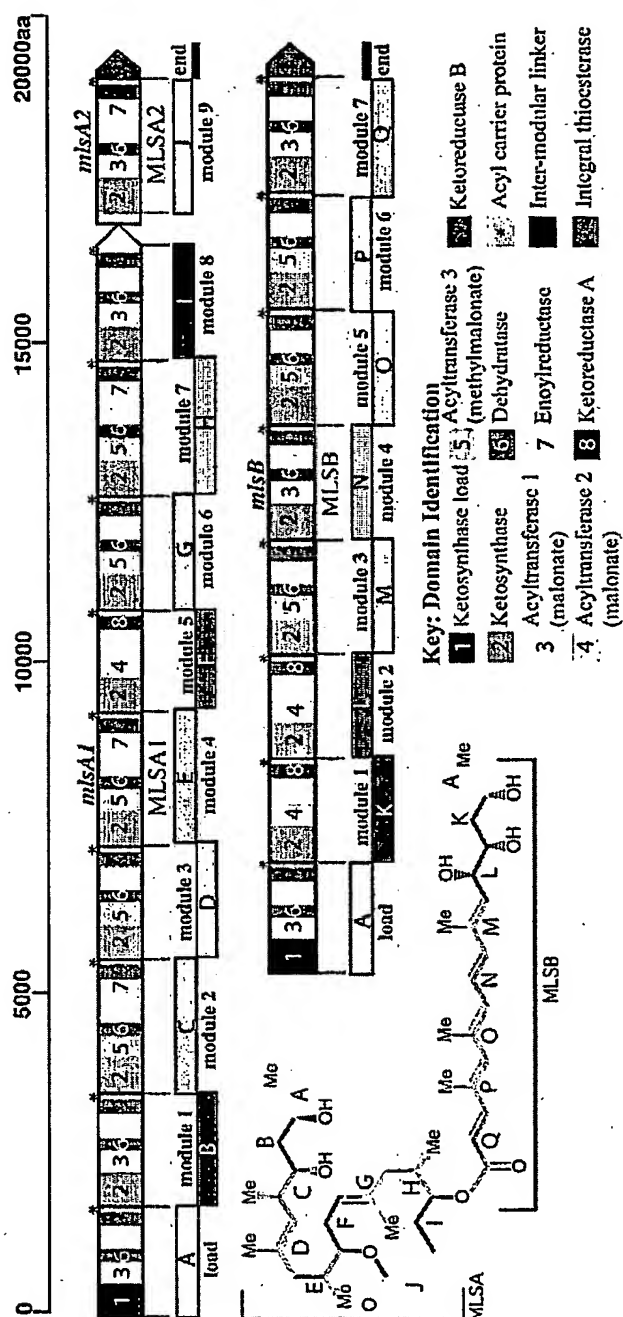


FIGURE 3

FIGURE 4A

FIGURE 4B

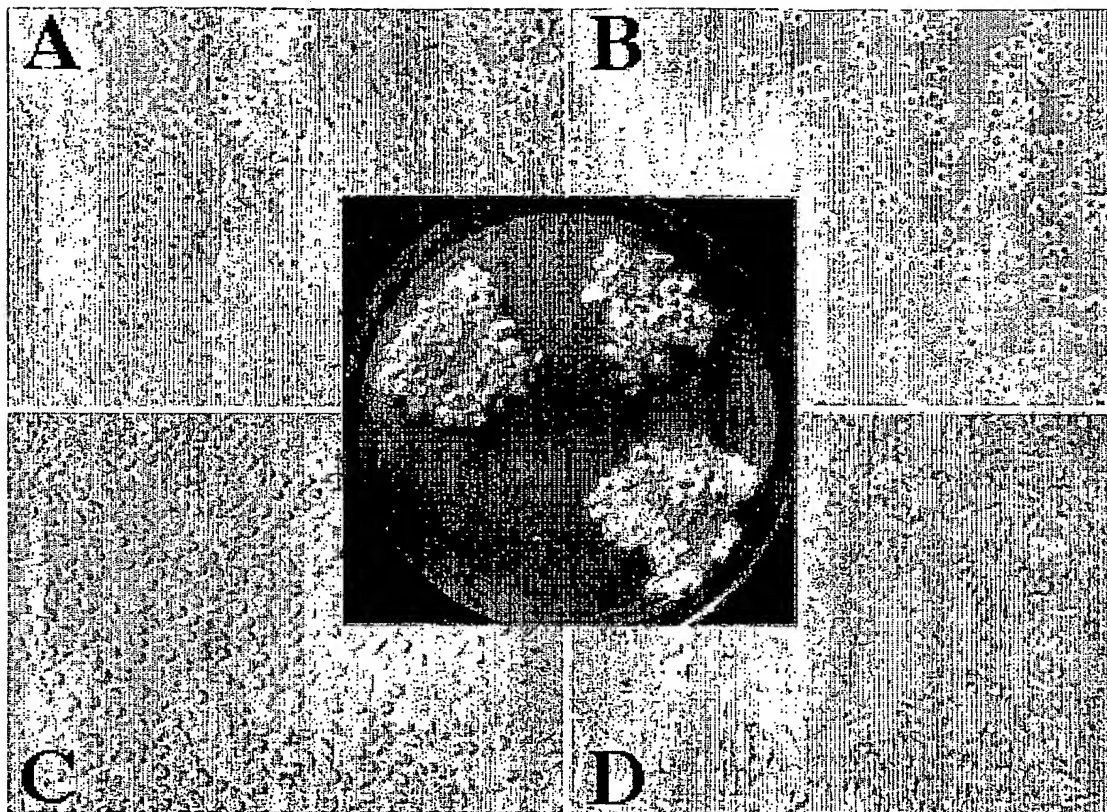


FIGURE 4C

FIGURE 4D



FIGURE 5A

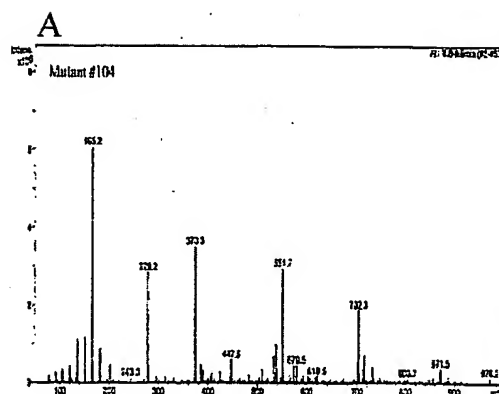


FIGURE 5B

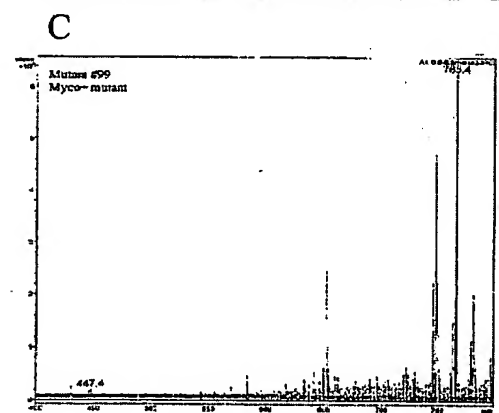
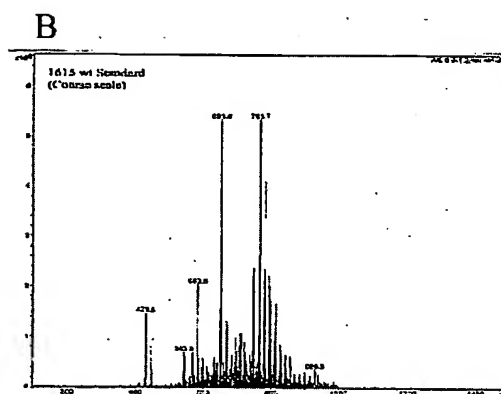


FIGURE 5C

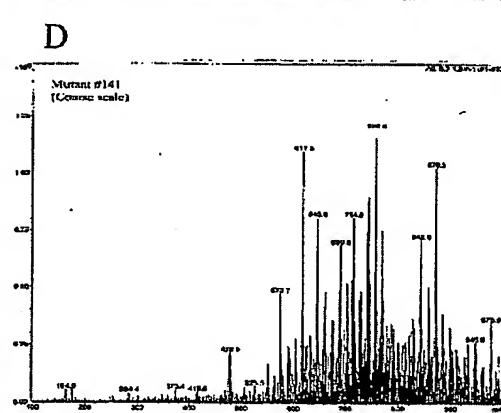


FIGURE 5D

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## MslA1 gene

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FIGURE 6

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FIGURE 6(continued)

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FIGURE 6(continued)

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FIGURE 6(continued)

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11951 cccacgccac cttgcccggc accttgacag tcgaccaacc cagccccac
12001 atcgactggt ccagcggcac agtcgcactc ctaaccgagc ccattccaatg
12051 gcccaacacc gaccaccccc gcaaccggcg ggtgtcctca ttcggcatca
12101 gcggcaccaa cgcccacctc atcctccaac aacccccac cccgcacacc
12151 acacaaaccc ccaaccccc aacaggttct gatcccgagc tgggttctga
12201 ttccgcagtg ggttctgatc ccgcagtggt tgtactggtg tggccgttgt
12251 cagcgcgttc agcgcggggg ttaagcgcac aagcgcccg tctgtaccag
12301 catctcagcg cccacccccga tctggatccg atcgatgtag cccacagcct
12351 ggttaccaca cgcagccacc acccccaccg cgccaccatc accaccagca
12401 ttgagcacca cagcgaaaaa aaccacgaca caaccgatgc gctggccgca
12451 ctgcacgccc tggccaacaa cggcacacac cccctgctga gcagaggcct
12501 gctgacccca caggcccccg gcaaaacagt gttcgtgttc cccggacagg
12551 gcagtcaata ccccggcgat ggcgcagatc tctaccgcca attccccgtg
12601 ttgcccacag ccctcgacgc atgcgacgca gcgttacagc ctttactgg
12651 atggtcggtg ctactgtgtg tacacgacga acccgaggcc ccgtcgttgg
12701 agcgagtcga tgtggtccag cctgtgttgt tctcgggtg ggtgtcgtta
12751 gccgactctt ggcgggtggc cggaatcacc cccgatgcag tcctcggcca
12801 ctcccagggc gagatcgccg cggcacatgt ggccggagcc ctgaccttgc
12851 ccgaagcagc tgcggtagtg gctttgcgca gccgtgtctt gaccgacctg
12901 gccggtgccg gtgccatggc ttcagtgtca tcgcccagg aaccactgac
12951 ccagctgctg gcacggtggg acggcaagat cactgtcgcc gcagttaacg
13001 gccccgctag cgctgtggtc tccggcgata ccacagcgat caccgaattg
13051 ctgattacct gogaacacga aaacatcgac gctcgcgcta tccgggtgga
13101 ctaccctctt cattccccct atatggaaca catccgccat cagttcctcg
13151 acgagctacc cgagctgaca ccgcggccat caaccatcgc gatgtattcc
13201 accgtcgacg gcgaacctca cgacaccgcc tacgacacca ccacaatgac
13251 cgcggactac tggtaaccga acatccgtaa cactgtccgg ttccatgaca
13301 ctgtcgtctg cctgctcggg gcgggtgagc aggttttctt ggaactttca
13351 cctcaccggg tgttgacaca agcgatcacc gacaccgtcg aacaagccgg
13401 cggcgccggc gcagcagtcg cagctctacg caaggatcgc cctgatgctg
13451 tcgcggttcg tgacgactc ggccagctgc actgccatgg catcagccca
13501 tcttggaaatg ttctttactg ccaggcccg cccctcacac tgcccacct
13551 cgctttccag catcagcggt actggtgctt gccaccgct ggtgatttca
13601 ggggggcaaa taccacgcc atgcatccgc tgctagacac gccaccgaa
13651 ctggccgaaa acccgggatg ggtgttcacc ggccggatca gccaccgcac
13701 ccaaccatgg ctaaaccgaac acgccgtcga atcagccgtg ctgttcccag
13751 gcaccggatt cgtcgagcta gcgctgcatg tcgctgaccg tgccggatat
13801 tcctcgggtca acgaactgat cgtgcacacc cccctgctac tcgctggcca
13851 cgacaccgcg gatctacaga tcaccgtcac cgacaccgat gacatgggac
13901 ggagttctct taacatccac tcgcgcccac atatcgcca tgacaacacc
13951 accaccggcg atgaacaacc cgagtgggtc ctgcatgcca gcgcagtcct
14001 gaccgcacaa accaccgacc acaaccacct cccctaacg cctgtgccgt
14051 ggctccacc cggcacagcc gcgatogagg tggatgactt ctacgacgac
14101 ctgggtgcac agggctacaa ctacggcccg acattccaag gtgtgcaacg
14151 gatattggct gaccacgcca caccgatgt catctacgcc gaagttgaac

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FIGURE 6(continued)

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14201 taccogaaga caccgacatc gacggetacg gcatccaccc cgccttattc  
 14251 gacgcgctt tacacccctt actcgccctg acccaacccc ccaccaacga  
 14301 caccgatgac accaaccacg cagacaccgg tgaccagggtg cggctgccct  
 14351 acgcctttac cggcatcagt ttgcacgcca cccacgccac ccgattacgg  
 14401 gtacggctga cccgtaccgg cgcgatgcc atcaccgtgc acaccagtga  
 14451 caccaccgga gcccgggtgg cgatcatcga ctcatcgatc acccgcccc  
 14501 tcaccacgcg cacagggtct gctccggcaa ccacagcagc tggcctacta  
 14551 cacctgagct ggccaccaca ccctgacacc acgaccgaca ccgacaccga  
 14601 caccgatgcc ctgcggtatc aggtgatcgc cgaacccact caacaactgc  
 14651 cccgtacct gcacgacct caccaccaga ccgacctgca caccagcacc  
 14701 accgaagcag acgtggttgt gtggccggta ccggtgccca gcaacgaaga  
 14751 gctccaggca caccaagcat ccgacaccgc ggtgtcttct cggatacaca  
 14801 ccctgacccg ccaaactt accgtggtgc aggactggct cactcaccct  
 14851 gacccaccg gcaccgact ggtcatcgtg acccgccacg gcgtcaggac  
 14901 cagtgccac gaccgggtcc ccgacctagc ccacgccga gtgtggggcc  
 14951 tgatccgcag cgcacaaac gaacaccccg gacgttcac actgctcgac  
 15001 accgacgaca acaccaacag cgacaccctc accaccgccc taacctgccc  
 15051 aaccgcgcaa aaccaactgg ccatacgccg cgacaccatc cacatcccc  
 15101 gcctgacccg caccgctgtc ctgacaccac cggacagcgg cccctggcgc  
 15151 cttgacacca cgggcaaggg tgatctggcc aacctcgccc tgctaccgac  
 15201 cgccacact gccctggcct ctggacaaat ccgtatcgat gtccgggccc  
 15251 ctggtttgaa ttttcacgac gtggtcgtcg cgttggggct aatccccgac  
 15301 gacggattcg gcggaagc cgccggggtg atcagcgaga tcggtccga  
 15351 cgtctacgga ttgcgctgg gtgatgccgt gaccggcatg accgtctctg  
 15401 gtgcgtttgc cccagcact gtcgctgac accgcatggt gatgacgatc  
 15451 ccggcccggg ggtccttccc ccaagccgca tccataccgg tggattctct  
 15501 gaccgcctac atcgctttgg ccgagatctc gggcctaagc cgagggaac  
 15551 gagtgtgat ccctgcggc actggcggtg tgggtatggc tgcgattcaa  
 15601 ttggcacacc atttgggtgc cgaagtattc gccaccgcca gcgcgcgaa  
 15651 atggagcacc cttgaggcac tgggggtacc gcgcgaccat atcgcttctc  
 15701 cgcgtactct ggacttttcc aacgcattcc tcgatgccac caacggcgcc  
 15751 ggtgttgatg tcgtattgaa ctgcctcagt ggtgaattcg tcgaagcatc  
 15801 cctagccctg ctgcccccg cgtggccattt cgtcgaaatc ggcaaacccg  
 15851 acatccgtga taccgaggtc atcgccgcaa cccatccccg cgtcatttac  
 15901 cgcgcctcg atctgctcag cgtctcccc gatcacatcc agcgacact  
 15951 ggcccaactg tccccactgt ttgccaccga caccctaaaa cccctaccga  
 16001 ccactaatta cagcatctac caagccatct cggccttacg tgacatgagt  
 16051 caagcccgtc acacaggcaa gatcgtgctc actgcgcggg tgggtgtaga  
 16101 tcctgagggc acggtgttga tcaccggggg gaccgggacg ctgggtgcct  
 16151 tgttcgccga gcatctggtt tctgcccacg gtgtccggca tctgtgttg  
 16201 acctgcggc gcgacctca gggccacggt gccaccgatc tgcagcagcg  
 16251 gctcaccgat ctagggtctc atgtcaccat caccggcctg gatatcagcg  
 16301 accccgaagc actggccgcc ctggtcaatt cagtgccac acaacaccgt  
 16351 ttaaccgcgg tagtgacac cgccgtggtg ttggccgaca ccccggtcac  
 16401 cgagttgacc ggcgatcaac togaccagg gctggccccc aaaatcgacg  
 16451 cggcatggca gctgcaccaa ctacactacg aacacaacct gtctgcatc  
 16501 atcatgttct cgtccatggc cgaatgata ggcagtcccc gtctgggtaa  
 16551 ctacgcggca gccaacaccg cgttagatgc tctgcggac taccgccc  
 16601 gcctgggctt gccgcgacc agcctggcct ggggctactg gcagaccgc  
 16651 accggtctca ccgcgcatct aaccgatgta gatctagccc gcatgaccgc  
 16701 cctgggtttg atgcccacg ccaccagcca cggactggcc ctgttcgatg  
 16751 ccgcctcgc caccggacag ccggtttcga taccgcccc gatcaacacc  
 16801 cacaccctgg cccgacacgc ccgcgacaac accctggccc cgtcctgtc  
 16851 tgcgctgatc accacaccac ggcgcggggc ggcctctgcc gcaaccgatc  
 16901 tcgctcccg cctcaacgga cttagcccc aacagcaaca acaaacactg  
 16951 gccaccctcg tggccgcggc caccgccacc gtgctgggccc accacacccc  
 17001 cgaaagcatc agccagcca ccgcgttcaa agacctcgga atcgattcgc

FIGURE 6(continued)

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17051 -tgaccgcccct tgaactgcgc aacaccctca cccacaacac cggcctcaac
17101 ctttcgtcca ctcttatctt cgtacacccc acaccccatg cgggtggccga
17151 gcatctgctt gaacagatcc ctggcatcgg tgccttggtg ccggctccgg
17201 tggatgatcgc agctggtcgt accgaggagc cgggtggcggg ggtggggatg
17251 gcgtgtcgtt tccccgggtg tgctcgcata gcggatcagt tgtgggactt
17301 ggatgatcgct ggccgtgatg tggtaggtaa tttccggcc gatcgggggtt
17351 gggatgtgga gggactgttt gatcccgatc cggacgcggg cggcaaaacc
17401 tacacccgtt acggcgcgtt ccttgacgat gcggcagggt ttgatgccgg
17451 gttctttggg atctctccac gggaggcacg cgcgatggac cccagcagc
17501 ggctgctgct ggaggtgtgc tgggaagcgc tagaaaccgc gggattccc
17551 gcgcacacct tggccggcac ctccaccggg gtattcgtcg gagccggggc
17601 ccagtcctac ggccgccacca actccgatgg cgtgagggg tatgcgatga
17651 cgtgcggcgc gatcagcgtc atgtccggcc gtatgccta cacttgggc
17701 ctagaaggtc cagcgatcac cgttgacacc gcctgctcgt catcgtggg
17751 ggcaattcac ctggcctgcc aatccttacg caacaacgaa tcccagctag
17801 cactggccgg cggcgtcacc gtgatgagca cacctgcgat tttaccgag
17851 ttctcccgcc aacgcggcct ggccccagat ggacgctgca aagccttcgc
17901 cgctaccgcc gatggcaccg gctttggtga aggcgccggg gtcttggtcc
17951 ttgaaggct ctccgaggcc cgccgcaaca accaccggg ccttgcgatc
18001 gtgcgtggat cgcgatcaa ccaagacggc gcattccaac gactgaccgc
18051 accccacggc ccgtcacaac aacgcgtcat caaccaagca ctaggccaacg
18101 ccggcctcac ccacgaccag gtgcagcccg tcgaagccca cggcaccggc
18151 accacactgg gtgaccccat cgaagccagc gccctacacg ccacctacgg
18201 ccaccaccac acgcccgatc aaccgcttg gctgggatcc atcaaatcca
18251 acatcgcca caccgaagcc gccgcggcg ccgcgggtgt ggtcaagatg
18301 atccaagcca tcaccacgc caccttgccc gccacettgc acgtcgacca
18351 acccagcccc cactcgact ggtccagcgg cacagtccga ctctaaccg
18401 agcccatcca atggcccaac accgaccacc ccgcaccgc ggcggtgtcc
18451 tcattcggca tcagcggcac caacgccac ctcatctccc aacaaccccc
18501 ccccccgac accacacaaa ccccaacac cacaacaggt tctgatcccg
18551 cagtgggttc tgattccgca gtgggttctg atcccgagt ggggtgactg
18601 gtgtggccgt tgtcagcgcg ttcagcgcgg gggttaagcg cacaagcggc
18651 ccgtctgtac cagcatctca gcgccacccc cgtctggat ccgatcgatg
18701 tagccacag cctggctacc acacgcagcc accaccccca ccgcgccacc
18751 atcaccacca gcattgagca ccacagcga aacaaccacg acacaaccga
18801 tgcgctggcc gcactgcacg ccctggccaa caacggcaca cccccctgc
18851 tgagcagagg cctgctgacc ccacagggcc ccggcaaac agtggtcgtg
18901 tccccggac agggcagtc ataccccgcc atggcgag atctctaccg
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19001 agcctttcac tggatggctg gtgctagctg tgttacaga cgaaccgag
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19151 cagtcatcgg ccactcccag ggcgagatc ccgcggcaca tgtggccgga
19201 gccctgacct tggccgaagc agctgcggtg gtggctttgc gcagccgtgt
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19301 aggaaccact gaccagctg ctggcacggg gggacggcaa gatcactgtc
19351 gccgcagtta acggccccgc tagcgtgtg gtctccggcg ataccacagc
19401 gatcaccgaa ttgctgatta cctgcgaaca cgaaaacatc gacgtcgcg
19451 ctatcccggt ggactacccc tctattccc cctatatgga acacatccgc
19501 catcagttcc tcgacgagct acccgagctg acaccgcggc catcaaccat
19551 cgcgatgtat tccaccgtcg acggcgaacc tcacgacacc gcctacgaca
19601 ccaccacaat gaccgcggac tactggtacc gcaacatccg taacactgtc
19651 cggttccatg aactgtcgc tgcctgctc gggcggggtg agcaggtttt
19701 cctggaaactt tcacctacc cgtgttgac acaagcgatc accgacccg
19751 tcgaacaagc cggcgccggc ggccgagcag tgccagctct acgcaaggat
19801 cgcctgatg ctgtcgcgtt cgtgcagca ctggccagc tgcactgcca

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FIGURE 6(continued)



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19851 tggcatcagc ccacccctgga atgtttcttta ctgccaggcc cgccccctca  
 19901 cactgcccac ctacgctttc cagcatcagc gttactggct gctgcccacc  
 19951 gctggtgatt tcagcggggc caataccac gccatgcac cgctgctaga  
 20001 caccgccacc gaactggcgg aaaaccggg atgggtgttc accggcggga  
 20051 tcagcccacg caccacaacca tggctaaacg aacacgcgt cgaatcagcc  
 20101 gtgctgttcc caggcacccg atttgtcgag ctacgcgtgc atgtcgctga  
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 20201 tgctcgctgg ccacgacacc gcggatctac agatcacgt caccgacacc  
 20251 gatgacatgg gccggcagtc tcttaacatc cactcgcgc cacaatcgg  
 20301 ccacgacaac accaccaccg gcgatgaaca acccgagtgg gtccctgcag  
 20351 ccagcgcagt cctgaccgca caaaccaccg accacaacca cctcccccta  
 20401 acgctgtgtc cgtggcctcc acccggcaca gccgcgatcg aggtggatga  
 20451 ctcttacgac gacctggctg cacagggtca caactacggc ccgacattcc  
 20501 aaggtgtgca acggatatgg cgtgaccacg ccacaccgga tgtcatctac  
 20551 gccgaagttg aactacccga agacaccgac atcgacggct acggcatcca  
 20601 ccccgcccta ttcgacgcgg ctttacaccc cctactcgc ctgacccaac  
 20651 cccccaccaa cgacaccgat gacaccaaca ccgcagacac cggggaccag  
 20701 gtgcggctgc cctacgcctt taccggcatc agtttgcaag ccaccacgc  
 20751 cacccgattg cgggtacggc tgacccgtac cggcgccgat gccatcaccc  
 20801 tgcacaccag tgacaccacc ggagccccgg tggcgatcat cgactcattg  
 20851 atccccgcgc cctcaccac cggcacaggg tctgctccgg caaccacagc  
 20901 agctggccta ctacacctga gctggccacc acaccctgac accacgaccg  
 20951 acaccgacac cgacaccgat gccctgcggg atcgggtgat cgccgaaccc  
 21001 actcaacaac tgccccgcta cctgcacgac ctacacacca gcaccgacct  
 21051 gcacaccagc accaccgaag cagacgtggg tgtgtggccg gtaccggtgc  
 21101 ccagcaacga agagctccag gcacaccaag catccgacac cgcggtgtct  
 21151 tctcgggatac acaccctgac ccgcaaaaca cttaccgtgg tgcaggactg  
 21201 gctcactcac cccgacacca ccggcaccgg actggtcatc gtgaccggcc  
 21251 acggcgctcag caccagtgcc cagcaccggg tccccgacct agccccagcc  
 21301 gcagtgtggg gcctgatccg cagcgcccaa aacgaacacc ccggacgctt  
 21351 cacactgctc gacaccgacg acaacaccaa cagcgacacc ctaccaccg  
 21401 ccctaaccct gccaaaccgc gaaaaccaac tggccatacg ccgcgacacc  
 21451 atccacatcc ccgcctgac ccgacacagc agtgacggtg cgctcactgc  
 21501 gccggtggtg gtagatcctg agggcacggg gttgatcacc ggggggaccg  
 21551 ggacgtggg tgccctgttc gccgagcatc tggtttctgc ccatggtgtc  
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 21651 cgatctgcag cagcgggtca ccgatctagg tgcctatgtc accatcacgg  
 21701 cctgcgatat cagcgacccc gaagcactgg ccgcctggt caattcagt  
 21751 cccacacaac accgtttaac cgcggtagt caccaccggc cggatttggc  
 21801 cgacaccocg gtcaccgagt tgaccggcga tcaactcgac cagggtgtgg  
 21851 cccccaaaat cgacggcgga tggcagctgc accaactcac ctacgaacac  
 21901 aacctgtctg cattcatcat gttctcgtcc atggccggaa tgataggcag  
 21951 tcccggtcag ggtaactacg cggcagccaa caccgcgtta gatgctctc  
 22001 ccgactaccg ccaccgcctg ggcttgcccg cgaccagcct ggccctggggc  
 22051 tactggcaga ctacaccgg tctcaccgg catctaaccg atgtagatct  
 22101 agcccgcatg acccgccctg gtttgatgcc catcgccacc agccacggac  
 22151 tggccctgtt cgatgccgcc ctgcgccacc gacagcccgt ttcgataccc  
 22201 gccccgatca acacccacac cctggcccga cagcccgcg acaacaccct  
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 22301 ctgcgcgaac cgatctcgct gccgcctca acggacttag ccccaacag  
 22351 caacaacaaa cactggccac cctcgtggcc gcggccaccg ccaccgtgct  
 22401 gggccaccac acccccgaaa gcacagccc agccaccgcg ttcaaagacc  
 22451 toggaatcga ttcgctgacc gcccttgaa tgcgcaacac cctcaccac  
 22501 aacaccggcc tggatctgcc cccaccctc atcttcgatc accccacacc  
 22551 caccgcgcta acccaacacc tgacacccc actcaccacc ggtgcctgg  
 22601 tgccggctcc ggtggtgatc gcagctggtc gtaccgagga gccggtggcg

FIGURE 6(continued)

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22651 gtggtgggga tggcgtgtcg tttccccggt ggtgtcgcat cagcggatca
22701 gttgtgggac ttggtgatcg ctggccgtga tgtggtgggt aattttccgg
22751 ccgatcgggg ttgggatgtg gagggactgt ttgatcccga tccggacgcg
22801 gtcggcaaaa cctacacccg ttacggcgcg ttccttgacg atcgcgacgg
22851 ttttcatgcc gggttctttg ggatctctcc acgggaggca cgcgcgatgg
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22951 cggggtattc ccgcgcacac cttggccggc acctccaccg gggatttcgt
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23101 tacaccttgg gcctagaagg tccagcgatc accgttgaca ccgcctgtc
23151 gtcacgtctg gtggcaattc acctggcctg ccaatcctta cgcaacaacg
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23251 gttttcaccg atttctcccg ccaacgcggc ctggccccag atggacgctg
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23401 gtccttgcca tcgtcgctgg atcggcgatc aaccaagacg gcgcaccaa
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23651 ccatacaatc caacatcggc cacaccaaag ccgcgcggc cgcgcgggt
23701 gtggtcaaga tgatccaagc catcaccac gccaccttgc ccgccacctt
23751 gcacgtcgac caaccacgccc cccacatcga ctggtccagc ggcacagtcc
23801 gactcctaac cgagcccatc caatggcca acaccgacca ccccgccacc
23851 gcggcggtgt cctcattcgg catcagcggc accaacgccc acctcatcct
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24001 ccgttgtcag cgcgttcagc gccgggggta agcgacaag cggcccgctc
24051 gtaccagcat ctacgcgcc accccgatct ggatccgatc gatgtagccc
24101 acagcctggc taccacacgc agccaccacc ccacccgcgc caccatcacc
24151 accagcattg agcaccacag cgaacaacac caccacacaa ccgatgcgct
24201 ggccgcactg caccgcctgg ccaacaacgg cacacacccc ctgctgagca
24251 gaggcctgct gacccacacg ggccccggca aaacagtgtt cgtgttcccc
24301 ggacagggca gtcaataccc cggcatgggc gcagatctct accgccaatt
24351 ccccggtgtc gccacgccc tcgacgcatg cgacgcagcg ttacagcctt
24401 tcaactggatg gtcgggtgcta gctgtgttac acgacgaacc cgaggccccg
24451 tcgttgagc gggctgatgt ggtccagcct gtgttgttct cgggtgatgg
24501 gtcgttagcc gcaactctggc ggtgggcccg aatcaccccc gatgcagtca
24551 tcggccactc ccaggcgag atcgccgcgg cacatgtggc cggagccctg
24601 accttgcccg aagcagctgc ggtagtggct ttgcccagcc gtgtcttgac
24651 cgacctggcc ggtgccggtg ccatggcttc agtgctatcg cccaggaac
24701 cactgaccca gctgctggca cgggtgggac gcaagatcac tgtcgccgca
24751 gttaacggcc ccgctagcgc tgtggtctcc ggcgatacca cagcgatcac
24801 cgaattgctg attacctgcg aacacgaaaa catcgacgct cgcgctatcc
24851 cgggtgacta cccctctcat tccccctata tggaaacacat ccgccatcag
24901 ttcctcgacg agctacccga gctgacaccg cggccatcaa ccatcgcat
24951 gtattccacc gtcgacggcg aacctcacga caccgcctac gacaccacca
25001 caatgaccgc ggactactgg taccgcaaca tccgtaacac tgtccgggtc
25051 catgacactg tcgctgccct gctcggggcg ggtgagcagg ttttcctgga
25101 actttcacct caccgggtgt tgacacaagc gatcaccgac accgtcgaac
25151 aagccggcgg cggcgccgca gcagtgcag ctctacgcaa ggatcgccct
25201 gatgctgtcg cgttcgctgc agcactcggc cagctgcact gccatggcat
25251 cagcccatcc tggaatgttc tttactgcca ggcccgcccc ctacactgc
25301 ccacctacgc tttccagcat cagcgttact ggctgctgcc caccgctggt
25351 gatttcagcg gggccaatac ccacgccatg catcgctgc tagacaccgc
25401 caccgaactg gccgaaaacc gcggatgggt gttcaccggc cggatcagcc

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FIGURE 6(continued)

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25451 cacgcaccca accatggcta aacgaacacg ccgtcgaatc agccgtgctg
25501 ttcccaggca cgggatttgt cgagctagcg ctgcatgtcg ctgaccgtgc
25551 cggatattcc tcgggtcaacg aactgatcgt gcacaccccc ctgctactcg
25601 ctggccacga caccgcggat ctacagatca ccgtcaccca caccgatgac
25651 atgggccggc agtctcttaa catccactcg caccacata tcggccatga
25701 caacaccacc accggcgatg aacaaccga gtgggtcctg catgccagcg
25751 cagtcctgac cgcacaaacc accgaccaca accacctccc cctaaccgct
25801 gtgccgtggc ctccacccgg cacagccgcg atcgaggtgg atgacttcta
25851 cgacgacctg gctgcacagg gctacaacta cggcccgaca ttccaagggtg
25901 tgcaacggat atggcgtagc cagccacac ccgatgtcat ctacgccgaa
25951 gttgaactac ccgaagacac cgacatcgac ggctacggca tccaccccg
26001 cctattcgac gccgctttac acccctact cgccctgacc caacccccc
26051 ccaacgacac cgatgacacc aacaccgag acaccgtga ccagggtcgg
26101 ctgcccacag cctttaccgg catcagtttg cagccacccc acgccaccg
26151 attgcggtga cggtgaccc gtaccggcgc cgatgccatc accgtgcaca
26201 ccagtgcacac caccggagcc ccggtggcga tcacgactc attgatcacc
26251 cgccccctca ccaaccgccc aggtctgct ccggcaacca cagcagctgg
26301 cctactacac ctgagctggc caccacaccc tgacaccacg accgacaccg
26351 acaccgacac cgatgccctg cggtatcagg tgatcgccga accactcaa
26401 caactgcccc gctacctgca cgacctacac accagcaccg acctgcacac
26451 cagcaccacc gaagcagacg tggttgtgtg gccggtaccg gtgccagca
26501 acgaagagct ccaggcacac caagcatccg acaccgcggt gtcttctcgg
26551 atacacaccc tgaccgcgca aacacttacc gtggtgcagg actggtcac
26601 tcaccccgac accaccggca ccgactggt catcgtgacc cgccacggcg
26651 tcagcaccag tgcccacgac ccggtccccg acctagccca cgccgcagtg
26701 tggggcctga tccgcagcgc ccaaaacgaa cccccggac gcttcacact
26751 gctcgacacg gacgacaaca ccaacagcga caccctacc accgcctaa
26801 ccctgccaac ccgcgaaaac caactggcca tacgcgcgca caccatccac
26851 atcccccgcc tgaccgcgac cgctgtcctg acaccaccgg acagcggccc
26901 ctggcgctt gacaccaccg gcaagggtga tctggccaac ctgcctctgc
26951 tacgacccgc ccacactgcc ctggcctctg gacaaatccg tatcgatgtc
27001 cgggcgcgtg gtttgaattt tcacgacgtg gtcgtcgcgt tggggcta
27051 ccccgacgac ggattcggcg gagaagcgcg cggggtgatc agcgagatcg
27101 gtcccagact ctacggattc gccgtgggtg atgccgtgac cggcatgacc
27151 ctctctggtg cgtttgcccc cagcactgtc gctgatcacc gcattggtgat
27201 gacgatcccg gcccggtggt ccttccccca agccgcaccc ataccggtgg
27251 tattcctgac cgcctacatc gctttggcgg agatctcggg cctaagccga
27301 gggcaacgag tgctgatcca tgccggcact ggcggtgtgg gtatggctgc
27351 gattcaattg gcacaccatt tgggtgccga agtattcgcc accgccagcg
27401 ccgcgaaatg gagcaccctt gaggcactgg gggtagccgg cgaccatata
27451 gcttctctcg gtactctgga cttttccaac gcattcctcg atgccaccaa
27501 cgggcgcggt gttgatgtcg tattgaactg cctcagtggg gaattcgtcg
27551 aagcatccct agccctgctg ccccgcggtg gccatttcgt cgaaatcggc
27601 aaaaccgaca tccgtgatac cgaggtcatc gccgcaaccc atcccgcggt
27651 catttaccgc gccctcgatc tgctcagcgt ctccccgat cacatccagc
27701 gcacactggc ccaactgtcc cactgtttg ccaccgacac cctaaaaccc
27751 ctaccgacca ctaattacag catctaccaa gccatctcgg ccttacgtga
27801 catgagtcaa gcccgtcaca caggcaagat cgtgctcact gcgcccgtgg
27851 tggtagatcc tgagggcacg gtgttgatca ccggggggac cgggacgctg
27901 ggtgccttgt tcgcogagca tctggtttct gcccatggtg tccggcatct
27951 gttgttgacc tcgcggcgcg gacctcaggc ccacggtgcc accgatctgc
28001 agcagcggct caccgatcta ggtgctcatg tcacatcac ggctgcgat
28051 atcagcgacc ccgaagcact ggccgccttg gtcaattcag tgcccacaca
28101 acaccgttta accgcggtag tgcacaccgc cgcggtattg gccgacccc
28151 cggtcaccga gttgaccggg gatcaactcg accaggtgct ggccccaaa
28201 atcgacgcgg catggcagct gcaccaactc acctacgaac acaacctgtc
28251 tgcattcatc atgttctcgt ccattggccg aatgatagge agtcccgtc

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FIGURE 6(continued)

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28301 agggtaacta cgggcagcc aacaccgct tagatgctct cgccgactac
28351 cgccaccgcc tgggcttgcc cgcgaccagc ctggcctggg gctactggca
28401 gactcacacc ggtctcaccg cgcatctaac cgatgtagat ctagcccgca
28451 tgaccgcctt gggtttgatg cccatcgcca ccagccacgg actggccctg
28501 ttcgatgcog ccctcgccac cggacagccc gtttcgatac ccgccccgat
28551 caacacccac accctggccc gacacgcccg cgacaacacc ctggccccga
28601 tctcgctgc gctgatcacc acaccagggc gccgggcggc ctctgccga
28651 accgatctcg ctgcccgcct caacggactt agccccaac agcaacaaca
28701 aacactggcc accctcgtgg ccgcgccac cgccaccgtg ctgggccacc
28751 acacccccga aagcatcagc ccagccaccg cgttcaaaga cctcggaatc
28801 gatctcgtga ccgcccttga actgcgcaac accctcacc acaacaccgg
28851 cctcaacctt tgcctcactc ttatcttga tcacccaca cccatgcgg
28901 tggccgagca tctgcttgaa cagatccctg gcacgggtgc cctggtgccg
28951 gctcgggtgg tgatcgagc tggctgtacc gaggagccgg tggcgggtgt
29001 ggggatggcg tgtcgtttcc ccggtggtgt cgcatcagcg gatcagttgt
29051 gggacttggt gatcgctggc cgtgatgtgg tgggtaattt tccggccgat
29101 cggggttggg atgtggaggg actgtttgat cccgatccgg acgcggtcgg
29151 caaaacctac acccgttacg gcgcttcct tgacgatcg gcaggttttg
29201 atgcccgggtt ctttgggatc tctccacggg aggcacgccc gatggacccc
29251 cagcagcggc tgcgtctgga ggtgtgctgg gaagcgtag aaaccgcccg
29301 tatctccgcg cacaccttgg ccggcacctc caccggggtat tctgcggag
29351 ccggggccca gtcctacggc gccaccaact ccgatgagc tgagggtat
29401 gcgatgaccg gggcgcgac tagcgtcatg tccggccgta tgcctacac
29451 cttgggccta gaaggtccag cgatcaccgt tgacaccgcc tgcctcat
29501 cgctggtggc aattcacctg gcctgccaat ccttacgcaa caacgaatcc
29551 cagctagcac tggccggcgg cgccaccgtg atgagcacac ctgcggtttt
29601 caccgagttc tcccgcaca ccggcctggc cccagatgga cgtgcaaaag
29651 ccttcgcccgc taccgccgat ggcaccggt tgggtgaagg cgccggtc
29701 ttggtccttg aacggctctc cgaggccgc cgacaacacc acccggtcct
29751 tgcgatcgtc gctggatcgg cgatcaacca agacggcgca tccaacggac
29801 tgaccgcacc ccacggcccg tcacaacaac gcgtcatcaa ccaagcacta
29851 gccaacgccc gcctcaccca cgaccaggtc gacgcgctcg aagcccacgg
29901 caccggcacc acaactgggtg accccatcga agccggcgcc ctacacgcca
29951 cctacggcca ccaccacag cccgatcaac cgttttggt gggatccatc
30001 aaatccaaca tggccacac ccaagccgc gccggcgccg ccggtgtgtg
30051 caagatgatc caagccatca cccacgccac cttgcccgcc acctgacag
30101 tgcaccaacc cagccccac atcgactggt ccagcggcac agtccgactc
30151 ctaaccgagc ccatccaatg gcccaacacc gaccacccc gcaccgccc
30201 ggtgtcctca ttcgcatca gggcaccaa cgccacctc atcctccaac
30251 aacccccac cctaaccacc acacaaacc ccgaggactg cagccccga
30301 caatctcctt gcgaacaat caccgatgca ggcacgggat tatcgtttgt
30351 gccctgggtg atttcagcga agtcggctga ggcgttgtct gcgcaggcga
30401 gccgattggt gacgcgcctt gacgatgatc cagttgtcga tgcaatcgac
30451 ctgggggtgt cattgatagc cactcgatcg atgtttgagc atcgcgagt
30501 agttgtgggt gcggatcgtc accagttgca gcgcggttg gccgagttg
30551 cttctggtaa cttggcgccc gatgtagtg tgggcccggc ccgcgacgg
30601 ggcgagactg taatggtgtt tcccggtcag ggatcacagc ggttgggcat
30651 gggcgcgag ctttatgaac aattcccgt attcgcgcg gcgtttgatg
30701 acgttggtga tgcgctggac cagtatctgc ggttgccgt acgccaagtt
30751 atgtgggggt acgatgaagg cctgctcaat tcaacggagt tgcgccagcc
30801 gtcggtgttt gctgtcgagg tcgactgtt tgcgttgctg cgtttctggg
30851 gtgctggtcc ggattacgtg ataggccatt cggtaggaga gctggccgt
30901 gcacaagtgg ctggcgtttt gagcctgcag gacgcggcta aattagtttc
30951 agcgcggggc cgactgatgc aggcctgccc cgccggtgga gcgatggtcg
31001 cggtagccgc cagccagcat gaagtcgagc ctttgcgtgt tgaaggggtc

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FIGURE 6(continued)

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31051 gatatcgcg cgctcaatgc gccaggggtca gttgtgatct ctgggtgatca
31101 ggcgggcagtc cgtttgatcg ctaatcgatt ggcgggatagg ggctacaggg
31151 cgcacgaact tgcgggttctg catgcctttc attcatcggt gatggagccg
31201 atgttgagg agttcgctcg gctcgcttct gaaatcggtg tggagcaacc
31251 gcagattcca ctgatttcga acgtgactgg tcagctggcc aacgccgact
31301 acgggtcggc aggttactgg gtggaccaca tccgcgtcc agtccgttc
31351 gccgatagtg tcgcttcgtt ggaagccatg ggggctagct gcttcattga
31401 agtcggtcca gccagcgggt tgggcgcagc tatcgagcaa tccttgaat
31451 ctgccgagcc gaccgtgtca gtgtcggcac tgtccaccga taaacctgaa
31501 tccgtcgccg tattgcgcgc tgcagcacga ctttcacact ccggcattcc
31551 tgtggattgg cagtcggtgt tcgacggccg cagcaccag acagttaacc
31601 tgccaccta cgccttcag cggcaacggt tctggctcga cgccaaccgt
31651 atcggtaag gogatccgc cagtcaacca caggcccaga acgttgaatc
31701 ccgttttgg gaggcggtcg agcgggaaga cgttgatggc ttggctgatt
31751 ctatagtggt caccgccagt gccatgcaga ccgtgctacc tgcattgtct
31801 tcatggcgtc gcgcggagcg cacacagtcc gagcttgatt cctggcgcta
31851 tcaggtgaca tggctgtctt cccagcaac gccagttcg atcacgtgt
31901 ccggcatttg gttgctgata gttccaagcg aacttgcaaa gactgacca
31951 gtaattggat gtgctgcagc gctcgaagcg caccggcct tagtcacgat
32001 tatcacaatt ttcgagccgc acttcaatcg ctcatgatg ggcgctccc
32051 taaaagatat cggttcacac atatctggtg tcatatcggt ctagggatt
32101 caccggtccg aattctcga tagcggcgcg gtcaagacat taaatctgt
32151 gcaagcaatg ggcgatgtcc acttagacgt tcctttgtgg tgcctaacgc
32201 agggcgcggt atcgatcagc gccgacgatt tgatccgatg ctgctcagca
32251 gccctggtgt ggggtctggg gagagtcgtc gcattagagc acccgggatc
32301 gtggggtggc ttagtagacc tccccagtc acccgacgat gcagcatggg
32351 agcgcttggt cgcctcctc gcgcagccga cggatgaaga tcagtttgcg
32401 atcaggccgt ctggggtttt cctacggaga ttgatccacg ccccggaac
32451 caccagatcc aaatcctcga ccgcgtgggc tccgaggggg accgtgttaa
32501 tcacaggcgg cacaggcgcg ttaggcgcac acgtcgcaag gtggttgcc
32551 cacaatatg aatcggtaga tttgctctta accagccgtc ggggatggc
32601 agccgatgga gctacagagc tagtgatga cctccgcagc gctggcgcca
32651 gtgtgacagt gcacgcctgc gacgtgacag accgcacttc agtcaggct
32701 gcaatagcag gtaaatccct tgatgcggtc tttcatcttg caggacgaca
32751 ccagccaact ctgctaacag aactcgagga cgaatccttt agtgacgaat
32801 tggcgccgaa ggttcacggt gcccaagtat tgagtacat caogtctaac
32851 ctcacactat cagcgtttgt catgttctcg tcagtaccg gaatctggg
32901 cggcaaaagt caaggcgcat atgctgccgc taacgcattc ttagattcgc
32951 tcgccgagaa acggcgcacg ttggggttac cagcaacatc ggtcgcttgg
33001 ggactgtggg ctggcgcgcg catgggagac cggccatccg cttcgggact
33051 aaacettatt ggcttgaaat cgaatgcagc agatttagct gtgcaggcg
33101 taagcgacgc cattgacaga ccgcaagcaa cattgactgt tgcgagcgtc
33151 aactgggatc ggttctaccc cacattcgct ttggcgcgac cgaggccctt
33201 cctacacgaa atcacagagg taatggctta ccgcgagtc atgcgctcaa
33251 gctctgcac gacggcgacg ctctgacga gcaaattagc cggactaacg
33301 gcgacagaac agcgtgcagt cacccggaag ttggtccttg atcaagccgc
33351 atccgttctc gggtagcct caactgagag tctcgatact catgagtcac
33401 tcaaagacct cggatttgat tcgctgaccg ccttgaact gcgcgaccac
33451 ctccaaactg cgaccggcct caacctttcg tccactctta tcttcgatca
33501 cccacacccc catgcggtgg ccgagcatct gcttgaacag atccctggca
33551 tgggtgccct ggtgcggct ccggtggtga tcgcagctgg togtaccgag
33601 gagccggtgg cgggtggtgg gatggcgtgt cgtttccccg gtggtgtcgc
33651 atcagcggat cagttgtggg acttggtgat cgtggccgt gatgtggtgg
33701 gtaattttcc ggccgactcg ggttgggatg tggagggact gtttgatccc
33751 gatccggacg cgttcggcaa aacctacacc cgttacggcg cgttccttga
33801 cgaatcgcca ggttttgatg ccgggttctt tgggatctct ccacgggagg
33851 caccgcgat ggacccccag cagcggtctc tgctggaggt gtgctgggaa

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FIGURE 6(continued)

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33901 gcgctagaaa ccgcggttat tcccgcgcac accttgccg gcacctccac
33951 cggggtattc gccggagcct gggcccagtc ctacggcgcc accaactccg
34001 atgacgctga ggggtatgcg atgaccggcg gctcgactag cgtcatgtcc
34051 ggccgtatcg cctacacctt gggcctagaa ggtccagcga tcaccgttga
34101 caccgcctgc tcgtcatcgc tgggtgcaat tcacctggcc tgccaatcct
34151 tacgcaacaa cgaatcccag ctacgactgg ccggcgccgt caccgtgatg
34201 agcacacctg cgattttcac cgagttctcc cgccaacgog gcctggcccc
34251 agatggacgc tgcaaacctt tcgcccgtac cgccgatggc accggttttg
34301 gtgaaggcgc cgcggtcttg gtccttgaac ggctctccga ggcccgcgc
34351 aacaaccacc cggtccttgc gatcgctcgt ggatcgccga tcaaccaaga
34401 cggcgcatcc aacggactga ccgcacccca cggcccgtca caacaacgog
34451 tcatcaacca agcactagcc aacgcgggcc tcaccacga ccaggtcgac
34501 gccgtcgaag cccacggcac cggcaccaca ctgggtgacc ccacgaagc
34551 cagcgcccta cagccacct acggccacca ccacagccc gatcaaccgc
34601 tttggctggg atccatcaaa tccaacatcg gccacacca agccgcgcgc
34651 ggcgcgcgcg gtgtgttcaa gatgatcaa gccatcacc acgccacctt
34701 gcccgccacc ttgcacgtcg accaaccag cccccacatc gactggtcca
34751 gcggcacagt ccgactccta accgagcca tccaatggcc caacaccgac
34801 cacccccgcg ccgcgccggt gtcctcatc ggcatcagcg gcaccaacgc
34851 ccacctcatc ctccaacaac cccccacccc cgacaccaca caaaccccca
34901 acaccacaac aggttctgat ccgcagtggt gttctgatcc cgcagtgggt
34951 gtactggtgt ggcggttgc agcgcgttca gcgcggggt taagcgacac
35001 agcggccggt ctgtaccagc atctcagcgc ccaccccgat ctggatccga
35051 tcgatgtagc ccacagcctg gctaccacac gcagccacca cccccaccgc
35101 gccacatca ccaccagcat tgagcaccac agcgaacaa accacgacac
35151 aaccgatgcg ctggccgcac tgcacgccct ggccaacaac ggcacacacc
35201 ccctgctgag cagaggcctg ctgaccccac agggcccccg caaacagtg
35251 ttcgtgttcc ccggacaggg cagtcaatac cccggcatgg gcgcagatct
35301 ctaccgcca tccccgtgt tcgcccacgc octcgacgca tgcgacgacg
35351 cgttacagcc tttactgga tggtcggtgc tagctgtgtt acacgacgaa
35401 cccgaggccc cgtcgttga ggggtcgat gtggtccagc ctgtgtgtt
35451 ctcggtgatg gtgtcgttag ccgactctg gcggtgggcc ggaatcacc
35501 ccgatgcat catcgccac tcccaggcg agatcgccgc ggcacatgtg
35551 gccggagccc tgaccttgcc cgaagcagct gcggtagtgg ctttgcgag
35601 ccgtgtcttg accgacctg ccggtgcgg tgccatggct tcagtgtat
35651 cgcgcgagga accactgac cagctgctgg cacggtggga cggcaagatc
35701 actgtcgccg cagttaacgg ccccgctagc gctgtggtct ccggcgatac
35751 cacagcgatc accgaattgc tgattacctg cgaacacgaa aacatcgacg
35801 ctcgcgctat ccggtggac taccctctc attcccccta tatggaacac
35851 atccgccatc agttcctcga cgagctaccc gagctgacac cgcggccatc
35901 aaccatcgcg atgtattcca ccgtcgacgg cgaacctcac gacaccgctt
35951 acgacaccac cacaatgacc gggactact ggtaccgcaa catccgtaac
36001 actgtccggt tccatgacac tgtcgtgcc ctgctcggg cgggtgagca
36051 ggttttctcg gaactttcac ctaccccggt gttgacacaa gcgatcaccg
36101 acaccgtcga acaagccggc ggccggcgcg cagcagtgcc agctctacgc
36151 aaggatcgcc ctgatgctgt cgcgttcgct gcagcactcg gccagctgca
36201 ctgccatggc atcagcccat cctggaatgt tctttactgc caggcccgcc
36251 cctcacact gccacctac gctttccagc atcagcgta ctggtgctg
36301 cccaccgctg gtgatttcag cggggccaat accacgcca tgcacccgt
36351 gctagacacc gccaccgaac tggccgaaaa ccgcgatgg gtgttcaccg
36401 gccggtacag cccacgcacc caaccatggc taaacgaaca cgcgctcgaa
36451 tcagccgtgc tgttcccagg caccggattt gtcgagctag cgtgcatgt
36501 cgtgaccgt gccggtatt cctcggtcaa cgaactgatc gtgcacacc
36551 cctgctact cgtggccac gacaccgcg atctacagat caccgtcacc
36601 gacacgatg acatgggccc gcagtctctt aacatccact cgcaccaca
36651 tatcgccat gacaacacca ccaccggcga tgaacaacc gagtgggtcc
36701 tgcagccag cgcagtcctg accgcacaaa ccaccgacca caaccacctc

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FIGURE 6(continued)

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36751 cccctaacgc ctgtgccgtg gcctccaccc ggcacagccg cgatcgaggt
36801 ggatgacttc tacgacgacc tggtgcaca gggctacaac tacggcccga
36851 cattccaagg tgtgcaacgg atatggcgtg accacgccac acccgatgtc
36901 atctaagccg aagttgaact acccgaagac accgacatcg acggctacgg
36951 catccacccc gccctattcg acgccgcttt acacccccta ctgcacctga
37001 cccaa ccccc caccaacgac accgatgaca ccaacaccgc agacaccggg
37051 gaccaagtgcc ggctgcccta cgcctttacc ggcatcagtt tgcacgccac
37101 ccaagccacc cgattacggg tacggctgac cgtaccggc gccgatgcca
37151 tcaccgtgca caccagtgc accaccggag ccccggtggc gatcatcgac
37201 tcattgatca cccgccccct caccaccgcc acagggctctg ctccggcaac
37251 cacagcagct ggcctactac acctgagctg gccaccacac cctgacacca
37301 cgaccgacac cgacaccgac accgatgccc tgcggatatca ggtgatcgcc
37351 gaaccacact aacaactgcc cgcctacctg cagaccta acaccagcac
37401 caccgaagca gacgtggtg tgtggcgggt accggtgccc agcaacgaag
37451 agctcagggc aaccaagca tccgacaccg cgggtgtctt tcggatacac
37501 accctgaccc gccaaacact taccgtggtg caggactggc tcaactaccc
37551 cgacaacacc ggcacccgac tggctcatctg gaccgccac ggcgtcagca
37601 ccagtgccca cgaaccggtc cccgacctag cccagccgc agtgtggggc
37651 ctgatccgca ggcgccaaaa cgaacacccc ggacgcttca cactgctcga
37701 caccgacgac aacaccaaca gcgacacct caccaccgcc ctaaccctgc
37751 caaccgcgca aaaccaactg gccatacgcc gcgacaccat ccacatcccc
37801 cgcctgaccc gacacagcag tgacggtgcg ctcaactgcg cgggtggtgt
37851 agatcctgag ggcacggtgt tgatcacccg ggggaccggg acgctgggtg
37901 ccttgctcgc cgagcatctg gtttctgccc atggtgtccg gcctctgtg
37951 ttgacctcgc ggcgcggacc tcaggcccac ggtgccaccg atctgcagca
38001 gcggctcacc gatctaggtg ctcatgtcac catcacggcc tgcgatatca
38051 ggaacccgca agcactggcc gccctggtca attcagtgcc cacacaacac
38101 cgtttaaccc cggtagtcca caccgcgcg gtattggcgg acaccccggt
38151 caccgagttg accggcgatc aactcgacca ggtgctggcc cccaaaatcg
38201 acgcggcatg gcagctgcac caactcacct acgaacacaa cctgtctgca
38251 ttcatcatgt tctcgtccat ggcgggaatg ataggcagtc cgggtcaggg
38301 taactacgcg gcagccaaca ccgcgttaga tgctctcgcc gactaccgcc
38351 accgcctggg cttgcccgg accagcctgg cctggggcta ctggcagact
38401 cacacgggtc tcaccgcgca tctaaccgat gtagatctag cccgatgac
38451 ccgcctgggt ttgatgcca tcgccaccag ccacggactg gccctgttcg
38501 atgccgccct cgccaccgga cagcccgttt cgataccgc cccgatcaac
38551 acccaacccc tggcccgaca cgcgcgcgac aacaccctgg cccgatcct
38601 gtctgcgctg atcaccacac cagggcgccg ggcggcctct gccgcaaccg
38651 atctcgtcgc ccgcctcaac ggacttagcc cccaacagca acaacaaaca
38701 ctggccaccc tcgtggccgc ggccaccgcc accgtgctgg gccaccacac
38751 cccgaaagc atcagccag ccaccgcgtt caaagacctc ggaatcgatt
38801 cgctgaccgc ccttgaactg cgcaacacc tcacccacaa caccggcctg
38851 gatctgcccc ccaccctcat cttcgatcac cccacacccc atgcggtggc
38901 cgagcatctg cttgaacaga tccctggcat cgggtgcctg gtgcccgtc
38951 cgtgtgtgat cgcagctggt cgtaccgag agccggtggc ggtggtggg
39001 atggcgtgtc gtttccccgg tgggtgtcga tcagcggatc agttgtggg
39051 cttggtgatc gctggccgtg atgtggtgg taattttccg gccgatcggg
39101 gttgggatgt ggagggactg tttgatccc atccggacgc ggtcgcaaa
39151 acctacccc gttacggcgc gttccttgac gatgcggcag gttttgatgc
39201 cgggttcttt gggatctctc cacgggaggg acgcgcgatg gacccccagc
39251 agcggctgct gctggaggtg tgctgggaag cgctagaaac cgcgggtatt
39301 cccgcgcaca ccttgccgg caccctcacc ggggtattcg ccggagcctg
39351 ggcccagtc tacggcgcca ccaactccga tgacgctgag gggatgcca
39401 tgaccggcgg ctcgactagc gtcagtccg gccgatcgc ctacacctg
39451 ggcctagaag gtcacgcat caccgttgac accgcctgct cgtcatcgct
39501 ggtggcaatt cacctggcct gccaatcct acgcaacaac gaatcccagc
39551 tagcactggc cggcggcgct accgtgatga gcacacctgc ggttttcacc

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FIGURE 6(continued)

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39601 gagttctccc gccaacgagg cctggcccca gatggacgt gcaaagcctt
39651 gcgcgctacc gccgatggca ccggctttgg tgaaggcgcc gcggtcttgg
39701 tcttgaacg gctctccgag gcccgccgca acaaccaccc ggtccttgcg
39751 atcgctcgct gatcgcgat caaccaagac ggcgcatcca acggactgac
39801 cgacccccac ggcccgtcac aacaacgct catcaacaa gactagcca
39851 acgcccgcct caccacgac caggtcgac ccgtcgaag ccacggcacc
39901 ggacccacac tgggtgaccc catcgaagcc agccccctac acgccaccta
39951 cggccaccac cacacgcccg atcaaccgct ttggtggga tccatcaaat
40001 ccaacatcgg ccacacccaa gccgcggccg gcgcggccgg tgtgtcaag
40051 atgatccaag ccatcaccca cgccacctg ccgcacact tgcacgtcga
40101 ccaacccagc cccacatcg actggtccag cggcacagtc cgactcctaa
40151 ccgagcccat ccaatggccc aacaccgacc acccccgcac cgcgcggtg
40201 tcttcattcg gcatcagcgg caccaacgcc cactcatcc tccaacaacc
40251 cccaccccc gacaccaccc aaaccccaa caccacaaca ggttctgatc
40301 ccgcagtggg ttctgatccc gcagtgggtg tactggtgtg gccgttgtca
40351 gcgcgttcag cgccggggtt aagcgcacaa gggcccgctc tgtaccagca
40401 tctcagcgcc cacccgatc tggatccgat cgatgtagcc cacagcctgg
40451 ctaccacacg cagccaccac ccccaccgcg ccaccatcac caccagcatt
40501 gagcaccaca gcgaaaacaa ccacgacaca accgatgcgc tggccgcact
40551 gcacgcccct gccacaacag gcacacaccc cctgtgagc agaggcctgc
40601 tgacccacaa gggccccggc aaaacagtgt tctgttccc cggacagggc
40651 agtcaatacc ccgcatggg cgcatctc taccgccaat tccccgtgtt
40701 cgccacgccc ctgcagcat gcgacgcagc gttacagcct ttcactggat
40751 ggtcgtgtct agctgtgtta cacgacgaac ccgaggcccc gtcgttgag
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40951 gaagcagctg cggtagtggc tttgcgcagc cgtgtcttga ccgacctggc
41001 ccggtccggt gccatggctt cagtgtctat gcccgaggaa ccaactgacc
41051 agctgctggc acggtgggac ggcaagatca ctgtcggcgc agttaacggc
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41151 gattacctgc gaacacgaaa acatcgacgc tcgcgctatc ccggtggact
41201 accctctca tccccctat atggaacaca tccgccatca gttcctcgac
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41351 ccgactactg gtaccgcaac atccgtaaca ctgtccggtt ccatgacact
41401 gtcgctgccc tgcctggggc ggggtgagcag gttttcctgg aactttcacc
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41551 gcgttcgctg cagcactcgg ccagctgcac tgccatggca tcagcccatc
41601 ctggaatgtt ctttactgcc aggcccgccc cctcacactg cccacctacg
41651 ctttcagca tcagcgttac tggctgtgc ccaccgtgg tgatttcagc
41701 ggggccaata cccacgcat gcatccgctg ctagacaccg ccaccgaact
41751 ggccgaaaac cgcggtggg tgttcaccgg ccggatcagc ccacgcaccc
41801 aaccatggct aaacgaacac gccgtcgaat cagccgtgct gttcccaggc
41851 accgatttg tcgagctagc gctgcatgtc gctgaccgtg ccggatattc
41901 ctcggtcaac gaactgatcg tgcacacccc cctgtgtctc gctggccagc
41951 acaccgggga tctacagatc accgtcaccg acaccgatga catgggcccg
42001 cagtctctta acatccactc gcgcccacat atcgcccatg acaacaccac
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42101 ccgcacaaac caccgaccac aaccacctcc cctaaccgcc tgtgccgtgg
42151 cctccaccgg gcacagccgc gatcgaggtg gatgactct acgacgacct
42201 ggtgcacag ggctacaact acggcccgac attccaaggt gtgcaacgga
42251 tatggcgtga ccacgccaca cccgatgtca tctacgcga agttgaacta
42301 cccgaagaca ccgacatcga cggctacggc atccacccc cctattcga
42351 cgccgcttta caccctctac tcgcccgtgac ccaaccccc accaacgaca
42401 ccgatgacac caacaccgca gacaccggtg accaggtgcg gctgccctac

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FIGURE 6(continued)



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42451 gcctttaccg gcatacagttt gcacgccacc cagccacccc gattacgggt
42501 acggctgacc cgtaccggcg ccgatgccat caccgtgcac accagtgaca
42551 ccaccggagc cccgggtggcg atcatcgact cattgatcac ccgccccctc
42601 accaccgcca caggggtctgc tccggcaacc acagcagctg gcctactaca
42651 cctgagctgg ccaccacacc ctgacaccac gaccgacacc gacaccgaca
42701 ccgatgccct gcggtatcag gtgatcgccg aacccactca acaactgccc
42751 cgctacctgc acgacctaca caccagcacc gacctgcaca ccagcaccac
42801 cgaagcagac gtggttgtgt ggccggtagc ggtgcccagc aacgaagagc
42851 tccaggcaca ccaagcatcc gacaccgagg tgtcttctcg gatacacacc
42901 ctgaccggcc aaacacttac cgtggtgcag gactggtctc ctcaccccga
42951 caccaccggc acccgactgg tcatcgtagc ccgccacggc gtcagcacca
43001 gtgcccacga cccgggtcccc gacctagccc acgccgcagt gtggggcctg
43051 atccgcagcg cccaaaacga acaccccgga cgcttcacac tgctcgacac
43101 cgacgacacg accaacagcg acaccctcac caccgcccta accctgccc
43151 cccgcgaaaa ccaactggcc atacgcgcg acaccatcca catccccgc
43201 ctgaccggca ccgctgtcct gacaccaccg gacagcggcc cctggcgctt
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43551 ggcccgggtg tcttcccccc aagccgcata cataccggtg gtattcctga
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43651 gtgctgatcc atgccggcac tggcgggtgt ggtatggctg cgattcaatt
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43751 ggagcacctt tgaggcactg ggggtaccgc gcgaccatat cgcttcctcg
43801 cgtactctgg acttttccaa cgcattcctc gatgccacca acggcgccgg
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43901 tagccctgct gcccgcgggt ggccatttgc tcgaaatcgg caaaaccgac
43951 atccgtgata ccgaggtcat cgccgcaacc catcccggcg tcatttaccg
44001 cgccctcgat ctgctcagcg tctccccga tcacatccag cgcacactgg
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44101 actaattaca gcatacaca agccatctcg gccttacgtg acatgagtca
44151 agcccgtcac acaggcaaga tcgtgctcac tgcgcgggtg gtggtagatc
44201 ctgagggcac ggtgttgatc accgggggga ccgggacgct ggggtccttg
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44301 ctgcggcgcg ggacctcagg cccacggtgc caccgatctg cagcagcggc
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44451 aaccgcggta gtgcacaccg ccgcggtatt ggccgacacc ccggtcaccc
44501 agttgaccgg cgatcaactc gaccaggtgc tggcccccac aatcgacggc
44551 gcatggcagc tgcacaaact cacctacgaa cacaacctgt ctgcattcat
44601 catgttctcg tccatggccg gaatgatagg cagtcccgtg cagggttaact
44651 acgcggcagc caacaccgcg ttagatgtc tcgccgacta ccgccaccgc
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44851 gccctcgcca ccggacagcc cgtttcgata cccgccccga tcaacaccca
44901 caccctggcc cgacacgccc gcgacaacac cctgaccccg atcctgtctg
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45051 caccctcggt gccgcggcca ccgccaccgt gctggggcac cacaccccgc
45101 aaagcatcag ccagccacc gcgttcaaag acctcggaat cgattcgctg
45151 accgcccctt aactgcgcaa caccctcacc cacaacaccg gcctggtatc
45201 gcccccacc ctcattctcg atcaccac acccaccgcg ctaacccaac
45251 acctgcacac ccgactcacc accggtgccc tgggtgcggc tccggtggtg

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FIGURE 6(continued)

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45301 atcgcacgtg gtcgtaccga ggagccggtg gcggtggtg ggatggcgtg  
 45351 tcgtttcccc ggtggtgtcg catcagcggg tcaattgtg gacttgggtg  
 45401 tcgctggccg tgatgtggtg ggtaattttc cggccgatcg gggttgggat  
 45451 gtggcgggac tgtttgatcc cgatccggac gcggtcggca aaacctacac  
 45501 ccgttacggc gcgttccttg acgatgcggc aggttttgat gccgggttct  
 45551 ttgggatctc tccacgggag gcacgcgcga tggaccccc gcagcggctg  
 45601 ctgctggagg tgtgctggga agcgctagaa accgcgggta ttcccgcgca  
 45651 caccctggcc ggacacctca ccggggtatt cgtcggagcc ggggccagat  
 45701 cctacggcgc caccaactcc gatgacgtg aggggtatgc gatgaccggc  
 45751 ggccgcatca gcgtcatgtc cggccgtatc gcctacacct tgggcctaga  
 45801 aggtccagcg atcaccgtg acaccgcctg ctgctcatcg ctggtggcaa  
 45851 ttacacctggc ctgccaatcc ttacgcaaca acgaatccca gctagcactg  
 45901 gccggcggcg tcaaccgtgat gagcacacct gcggttttca ccgatttctc  
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 46151 acggcccgtc acaacaacgc gtcatacaac aagcactagc caacgcggcg  
 46201 ctacccacag accaggtcga cgccgtcgaa gccacggca ccggcaccac  
 46251 actgggtgac cccatcgaa agcgcgccct acacgccacc tacggccacc  
 46301 accacacgcc cgatcaaccg ctttggctgg gatccatcaa atccaacatc  
 46351 ggccaacacc aagccgcggc cggcgccgca ggtgtggtca agatgatcca  
 46401 agccatcacc cagccacct tgcgcggcac cttgcacgtc gaccaaccca  
 46451 gcccacacat cgactggtcc agcggcacag tccgactcct aaccgagccc  
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 46551 cggcatcagc ggcaccaacg cccacctcat cctccaacaa cccccaccc  
 46601 ccgacaccac acaaaccccc aacccacaa caggttctga tcccgcagtg  
 46651 ggttctgatt ccgcagtggg ttctgatccc gcagtgggtg tactggtgtg  
 46701 gccgttgcca gcgcgttcag cgccggggtt aagcgcaaaa gcggcccgct  
 46751 tgtaccagca tctcagcgcc caccocgatc tggatccgat cgatgtagcc  
 46801 cacagcctgg ctaccacacg cagccaccac cccacccgg ccaccatcac  
 46851 caccagcatt gagcaccaca gcgaaaacaa ccacgacaca accgatgcgc  
 46901 tggccgcact gcacgcocct gccaacaacg gcacacaccc cctgctgagc  
 46951 agaggcctgc tgacccccaca gggccccggc aaaacagtgt tcgtgttccc  
 47001 cggacagggc agtcaatacc ccggcatggg cgcagatctc taccgccaat  
 47051 tcccgtgttt cgcacacgcc ctgcagcagg tgcgtgcggc gctgaacccg  
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 47351 gactgatgca atcctgcacg cccggcgga cgatgctcgc actacaagcc  
 47401 agcgaagcag aagtacaacc gctgcttgaa ggcctagacc accgcgtgtc  
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 48001 cccacctacg ctttccagca tcagcgttac tggctgtgtc ccaccgtggt  
 48051 tgatttcagc ggggccaata cccacgcat gcacccgtg ctgacacccg  
 48101 ccaccgaact ggccgaaaac cgcggatggg tgttcaccgg ccgcatcagc

FIGURE 6(continued)

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48151 ccaacgcaccc aaccatggct aaacgaacac gccgtcgaat cagccgtgct
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48251 ccggatatct ctccgtcaac gaactgatcg tgcacacccc cctgctgctc
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49751 ccgatctgca gcagcggctc accgatctag gtgctcatgt caccatcacg
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50751 atcatatatc ttcaaaaatt cgggagaaga tcgagctcac gtaatcgcta
50801 atcggttacg gtcaattctc tcgaaatggg atggcaccog tagtccagaa
50851 ttacctgcgg aactccatct tgaatcgcca acagacgatg agctgttttc
50901 cctagcaaac atgttttcgca ctccaaccag cgaaatttca cctactctag
50951 aaggcggccg tgggtgtaac tga

```

FIGURE 6(continued)

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## MlsA2 gene

```

1   gtgggtgtcaa ctgaagaaaa cctacgcggt tacttaaaac aggtcatcac
51  agacctccac caaatgcagg cacgtctgcg gaagatcgaa aagcagagat
101 cagagcgggt ggcggtggtg gggatggcgt gtcgtttccc cgggtggtgc
151 gcatcagcgg atcagttgtg ggacttggtg atcgctggcc gtgatgtggt
201 gggtaatttt cgggcogatc ggggttgga tgtggaggga ctgtttgatc
251 ccgatccgga cgcggtcggc aaaacctaca cccgttacgg cgcgttcctt
301 gacgatgcgg caggttttga tgccgggttc tttgggatct ctccacggga
351 ggcacgcgcg atggaccccc agcagcggct gctgctggag gtgtgctggg
401 aagcgtaga aaccgcgggt attcccgcgc acaccttggc cggcacctcc
451 accggggtat tcgtcggagc ctgggcccag tcctacggcg ccaccaactc
501 cgatggcgct gagggttatg cgatgacggg cggctcgact agcgtcatgt
551 ccggccgtat cgcctacacc ttgggcctag aaggtccagc gatcaccggt
601 gacaccgcct gctcgtcatc gctggtggca attcacctgg cctgccaatc
651 cttacgcaac aacgaatccc agctagcaat ggccggcggc gtcaccgtga
701 tgagcacacc tgcggttttc accgagttct cccgccaacg cggcctggcc
751 ccagatggac ggtgcgaagc cttcgcgct accgcgatg gcaccggctg
801 ggggtgaaggc gccgcggtct tggctcttga acggctctcc gaggcccgcc
851 gcaacaacca cccggtcctt gcgatcgtcg ctggatcggc gatcaaccaa
901 gacggcgcat ccaaaggact gaccgcacc caccggccgt cacaacaacg
951 cgtcatcaac caagcactag ccaacgcgg cctcaccac gaccaggtcg
1001 acgccgtcga agccacggc accggcacca cactgggtga cccatcgaa
1051 gccagcgccc tacacgccac ctacggccac caccacacgc ccgatcaacc
1101 gctttggctg ggatccatca aatccaacat cggccacacc caagccgcgc
1151 ccggcgccgc cgggtgtggtc aagatgatcc aagccatcac ccacgccacc
1201 ttgcccgcca ccttgcaagt cgaccaaccc agccccaca tcgactggtc
1251 cagcggcaca gtccgactcc taaccgagcc catccaatgg cccaacaccg
1301 accacccccg caccgcggcg gtgtcctcat tcggcatcag cggcaccaac
1351 gcccacctca tcctccaaca accccccacc cccgacacca caaaaacccc
1401 caacaccaca acaggttctg atcccgagc gggttctgat tccgcagtgg
1451 gttctgatcc cgcagtggtg gtactggtgt ggccgttgtc agcgcgttca
1501 gcgcgggggt taagcgcaca agcggcccg ctgtaccagc atctcagcgc
1551 ccaccccgat ctggatccga tcgatgtagc ccacagcctg gctaccacac
1601 gcagccacca ccccccacgc gccaccatca ccaccagcat tgagcaccac
1651 agcgaanaaa accacgacac aaccgatgcg ctggccgcac tgcacgcctt
1701 ggccaacaa ggcacacacc ccctgctgag cagaggcctg ctgacccac
1751 agggcccccg caaaacagtg ttcgtgttcc cggacaggg cagtcaatac
1801 cccggcatgg gcgcagatct ctaccgcaa tccccgtgt tcgcccacgc
1851 cctcgacgag gtcgctgagg cgtgaaccc gcattctgat gttgcgttgc
1901 ttgaggtgat gttcagccaa caagacactg ccattggcga actgctggac
1951 cagaccttct atgcacaacc ggcgttgttc gcgctgggaa ccgctctaca
2001 tcgattgttc acccacgcgg gtatccaccc ggactacctg ctaggccact
2051 ccattcgaga actcaccgcg gcatacgccg ccggtgtgct gtcactgcaa
2101 gacgcagcca ctttggtcac aagccgagga cgactgatgc aatcctgcac
2151 gcccgcgggg acgatgctcg cactacaagc cagcgaagca gaagtacaac
2201 cgtgcttga aggcctagac caccgcgtgt ccattgccgc gatcaacgga
2251 gcaacgtcga tcgtactgtc aggagatcac gacagcctcg aacaaatcgg
2301 cgagcacttc attaccaag atcgacgtac caccgcactg caggctcagt
2351 acgctttcca ctctccacat atggacccca tcctcgaaca attccgccag
2401 atcgcgccc aactcacctt cagcgacccc accctgccc tcttgtccaa
2451 cctcacgggg cagatcgccc gccacgacca actcgccca cctgactatt
2501 ggacccaaca gctacgtaac actgtccggg tccatgacac tgtcgtgccc
2551 ctgctcgggg cgggtgagca ggttttcctg gaactttcac ctacccgggt
2601 gttgacacaa gcgatcaccg acaccgtcga acaagccggc ggcggcgggc
2651 cagcagtgcc agctctacgc aaggatcgcc ctgatgctgt cgcgttcgct

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FIGURE 7

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2701 gcagcactcg gccagctgca ctgccatggc atcagcccat cctggaatgt  
 2751 tctttactgc caggcccgcc ccctcacact gcccacctac gctttccagc  
 2801 atcagcggtta ctggctgctg cccaccgctg gtgatttcag cggggccaat  
 2851 acccagccca tgcacccgct gctagacacc gccaccgaac tggccgaaaa  
 2901 ccgcgatgg gtgttcaccg gccggatcag cccacgcacc caaccatggc  
 2951 taaacgaaca cgcgctcgaa tcagccgtgc tgttccagg caccggattt  
 3001 gtcgagctag cgctgcatgt cgctgaccgt gccggatatt cctcggtcaa  
 3051 cgaactgac gtgcacaccc ccctgctaact cgctggccac gacaccgagg  
 3101 atctacagat caccgtcaac gacaccgatg acatgggccc gacgtctctt  
 3151 aacatccact cgcacccaca tatcgcccat gacaacacca ccaccggcga  
 3201 tgaacaaccc gagtgggtcc tgcattgccag cgagtcctg accgcacaaa  
 3251 ccaccgacca caaccacctc cccctaaccg ctgtgccgtg gcctccaccc  
 3301 ggacagccg cgatcgaggt ggatgacttc tacgacgacc tggctgcaca  
 3351 gggctacaac tacggcccga cattccaagg tgtgcaacgg atatggcgtg  
 3401 accagccac acccgatgtc atctacgccc aagttgaact accggaagac  
 3451 accgacatcg accgctacgg catccaccoc gccctattcg acccgctttt  
 3501 acacccccca ctgcacctga cccaaccccc caccaacgac accgatgaca  
 3551 ccaacaccgc agacaccggt gaccaggtgc ggctgcccta cgcctttacc  
 3601 ggcacagtt tgcacgccac ccacgccacc cgattgcggg tacggctgac  
 3651 ccgtaccggc gccgatgcca tcaccgtgca caccagtac accaccggag  
 3701 ccccggtggc gatcatcgac tcattgatca cccgccccct caccaccgcc  
 3751 acagggtctc ctccggcaac cacagcagct ggcctactac acctgagctg  
 3801 gccaccacac cctgacacca cgaccgacac cgacaccgac accgatgccc  
 3851 tgcggtatca ggtgatcgcc gaaccactc aacaactgcc ccgctacctg  
 3901 cagacctac acaccagcac cgacctgac accagacca ccgaagcaga  
 3951 cgtggttgtg tggccggtac cggtgcccag caacgaagag ctccaggcac  
 4001 accaagcatc cgacaccgcg gtgtctcttc ggatacacac cctgaccgcc  
 4051 caaacactta ccgtggtgca ggactggctc actcaccgcc acaccaccgg  
 4101 acccgactc gtcacgtga cccgccacgg cgtcagcacc agtgcccacg  
 4151 acccggtccc cgacctagcc caccgccgag tgtggggcct gatccgagc  
 4201 gcccacaaag aacaccccg acgcttcaca ctgctcgaca ccgacgacaa  
 4251 caccaacagc gacacctca ccaccgccct aaccctgcca acccgcgaaa  
 4301 accaactggc catacgccgc gacaccatcc acatcccccg cctgaccgcc  
 4351 accgctgtcc tgacaccacc ggacagcgcc ccctggcgcc ttgacaccac  
 4401 cggcaagggt gatctggcca acctcgccct gctaccgacc gccacactg  
 4451 ccctggcctc tggacaaatc cgtatcgatg tccggggcgc tgggttgaa  
 4501 tttcagcagc tggctgctgc gttggggcta atccccgacg accgattcgg  
 4551 cggagaagcc gccggggtga tcagcgagat cgggtccgac gtctacggat  
 4601 tcgcccgtgg tgatgccgtg accggcatga ccgtctctgg tgcgtttgcc  
 4651 cccagcactg tcgctgatca ccgcatggtg atgacgatcc cggcccgtg  
 4701 gtccttcccc caagccgcat ccataccggg ggtattcctg accgcctaca  
 4751 tcgctttggc cgagatctcg ggcctaagcc gagggcaacg agtgctgatc  
 4801 catgccggca ctggcggtgt gggatggct gcgattcaat tggcacacca  
 4851 tttgggtgcc gaagtattcg ccaccgccag cgcgcgaaa tggagcacc  
 4901 ttgaggcact gggggtaccg cgcgaccata tcgcttcctc gcgtactctg  
 4951 gacttttcca acgattcct cgatgccacc aacggcgccg gtgttgatgt  
 5001 cgtattgaac tgccctcagtg gtgaattcgt cgaagcatcc ctagccctgc  
 5051 tgcccccgcg tggccatttc gtcgaaatcg gcaaaaccga catccgtgat  
 5101 accgaggtca tcgcccgaac ccaccccgcc gtcatttacc gcgccctcga  
 5151 tctgctcagc gtctcccccg atcacatcca gcgcacactg gcccaactgt  
 5201 cccactgtt tgccaccgac accctaaaac ccctaccgac cactaattac  
 5251 agcatctacc aagccatctc ggccttacgt gacatgagtc aagcccgta  
 5301 cacaggcaag atcgtgctca ctgcgccggt ggtggtagat cctgaggga  
 5351 cgggtttgat caccgggggg accgggacgc tgggtgcctt gttcgccgag  
 5401 catctggttt ctgcccattg tgcgggcat ctgttggtga cctcgccgag  
 5451 cggacctcag gccacgggtg ccaccgatct gcagcagcg ctcaccgatc  
 5501 taggtgctca tgtcaccatc accgcctcgc atatcagcga ccccgaaaga

FIGURE 7(continued).

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5551 ctggccgccc tggccaattc agtgcccaca caacaccgtt taaccgcggt
5601 agtgcacacc gccgcggtat tggccgacac cccggtcacc gagttgaccg
5651 gcgatcaact cgaccaggtg ctggccccc aatcgacgc ggcattggcag
5701 ctgcaccaac tcacctacga acacaacctg tctgcattca tcatgtttctc
5751 gtccatggcc ggaatgatag gcagtcgccg tcagggtaac tacgcggcag
5801 ccaacaccgc gttagatgct ctgcgcgact accgccaccg cctgggcttg
5851 ccgcgcacca gcctggcctg gggctactgg cagaccgcga ccggtgtcac
5901 cgcgcatcta accgatgtag atctagcccg catgaccgcg ctgggtttga
5951 tgcccatcgc caccagccac ggactggccc tgttcgatgc cgcctcgcg
6001 accggacagc ccgtttcgat accgcgcccg atcaacaccc acaccctggc
6051 ccgacacgcc cgcgacaaca ccctgacccc gatcctgtct gcgctgatca
6101 ccacaccacg gcgcggggcg gcctctgcg caaccgatct cgctgcccgc
6151 ctcaacggac ttagccccc aacagcaaca caaacactgg ccaccctcgt
6201 ggccgcggcc accgccaccg tgctgggcca ccacaccccc gaaagcatca
6251 gccagccac cgcttcaaa gacctcgga tcgattcgct gaccgcctt
6301 gaactgcgca acaccctcac ccacaacacc ggcctggatc tgcccccac
6351 cctcatcttc gatcacccca caccctatgc gctaaccaca cacctgcaca
6401 cccgactcac ccaaagccat accccggctg gaccaattgc gtccctgcta
6451 agccacgcga tcgatgaggg caaattccgt gccggcgctg acctattgat
6501 ggccgcatcc aatttgaacc aaagtttcag caatatggct gaactcaacc
6551 agtcccggc cgtgacggac atagctgacg cgtctcctga tgggctactc
6601 accctgatct gcctctctac ctacagagaat gactacgctc gcctcgctgc
6651 tgcgaacatt cattactga ccttcgctga aattgcggcg ccggcctttt
6701 acgacgcgca gctgccaat tcgatagaga cgtcggcaga ggcgctggca
6751 actgccatca caggcgcta cgcaaatacg tcattgttc tggtagcgca
6801 ctccattgtc tgcgagctag ctacaggcaac gatgacacgt ctacaagacg
6851 ctgacatoga tcttgtgggt ctggttctgt tggatccact cgaagggact
6901 aacagcactg aagattatgt ggagacagtc ttgactcgaa tcgagcatat
6951 caatgcaccg aggtcgag tagacggta ccttgccgcg ctgggcccgt
7001 atctccaatt ccacgaagac cgccgaatac caataccgga aacgcggcac
7051 atgacactgc actcggacac gaaaattgac cgtgcccaca caccaatgaa
7101 cttattacaa gatgaggcag cgttgaccgc cctcaaaata ggaaactgga
7151 tgaacgacac agggagtatc gcagtaacac tgagagatgg acccgattc
7201 ttgggcaggg ccgctctgt caacatgagg tga

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FIGURE 7(continued)

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MlsB gene

```

1   gtgatcttcg gagatgctca ccaaaactgc aggggaggtc ggggtgttggg
51  tgatgcagtc gcagtggctc gaatgtcttg ccgggttcct ggcgcatctg
101 atccggacgc tctgtgggcg ctgctgcgag acgggatcag tgtggtogat
151 gagatacctt ctgcacgttg gaatttagac ggctcgttg ctaccgact
201 gaccgatgag caacgatcag cgcttcggca tggcgccctt cttgatgacg
251 togaagggtt tgacgcgcgc ttcttcggaa ttaaccctc cgaagctggg
301 tcgatggatc cgcagcaacg attgatgctt gaactgacct ggcgagcact
351 cgaagatgct cgaatcgtgc cagaacatct ttccggtagc agtagcgggg
401 tgtttaccgg cgccatgagc gatgattaca cgaccgcggt gacctaccgc
451 gcagcgatga ctgcacatac ctttgcgggg actcaccgca gcctcatagc
501 caaccgtgtc tcctacacac tcggtctacg cggacctagt ttggtcatcg
551 ataccgggca atcgttcctca ctggtggctg tgacagtggc aatggaaagc
601 ttgcgcagag aagaacttc acttgctatc gcgggtggtg ttcaccttaa
651 cctcagcctc cgcgcgcac tgagcgcagc acactttgga gccctttcac
701 ctgacggacg ctgctacacc ttgcgcgac gtgccaacgg atacgttcgt
751 ggcgaaggcg gcggcgctcg cgtcctcaa cgtctcaacg acgccctagc
801 cgacggcaac catatttact gtgtgatccg cggcagctca gtcaacaacg
851 acggcgccac tcaagacttg acagcgccg gactcgacgg ccagcgtcaa
901 gcgtccttc aagcttatga gcgagccgaa atcgaccctc cagaagtcca
951 atacgtcgag ctacatggca ccggcaccg actcggcgat ccaccgaag
1001 cccactcgct ccaactcgtc ttccggcacat ccacggctcc gcgcagcccg
1051 ctgctagtcg ggtcaatcaa aaccaatata ggtcacctcg aaggcgccgc
1101 aggaatctc ggctaatac agactgccct tgccgttcac catcgccagc
1151 ttccccccag cctcaactac acggttccta acccaaaaat cccgctagag
1201 cagctagggc tccgcgtcca aaccactctc agtgaatggc cggacttaga
1251 caaaccgcta acggcgggcg tgtcatcttt ttccatgggt ggcaccaacg
1301 cccactctca cctccaacaa cccccacc ccgacaccac acaaaccccc
1351 aacccccaaa caggttctga tcccgagtg ggttctgato ccgcagtggg
1401 tgtaactggtg tggccgttgt cagcgcgttc agcgcggggg ttaagcgcac
1451 aagcggcccg tctgtaccag catctcagcg cccaccccgga tctggatccg
1501 atcgatgtag cccaagcct ggctaccaca cgcagccacc acccccaccg
1551 cgccaccatc accaccagca ttgagacca cagcgaacac aaccacgaca
1601 caaccgatgc gctggccgca ctgcacgccc tggccaacaa cggcacacac
1651 cccctgctga gcagaggcct gctgacccca caggggcccg gcaaaacagt
1701 gttcgtgttc cccggacagg gcagtcaata ccccgcatg ggcgagatc
1751 tctaccgcca attccccgtg ttcccccacg cctcgcagca ggtcgtctcg
1801 gcgtgaacc cgcactctga tgttgctgtg cttgaggtga tgttcagcca
1851 acaagacact gccatggcgc aactgctgga ccagaccttc tatgcacaac
1901 cggcgttgtt cgcgctggga accgctctac atcgattgtt caccacgcc
1951 ggtatccacc cggactacct gctaggccac tccatcggag aactcaccgc
2001 ggcatacgcc gccggtgtgc tgtcactgca agacgcagcc accttggtca
2051 caagccgagg acgactgatg caatcctgca cggccggcgg gacgatgctc
2101 gactacaag ccagcgaagc agaagtacaa ccgctgcttg aaggcctaga
2151 ccacgcctg tccatcgccg cgatcaacgg agcaacgtg atcgtactgt
2201 caggagatca cgacagcctc gaacaaatcg gcgagcactt cattacccaa
2251 gatcgacgta ccaccgact gcaggtcagt cagccttcc actctccaca
2301 tatggacccc atcctcgaac aattccgcca gatcgcgccc caactcacct
2351 tcagcgaccc caccctgcgc atcttgtcca acctcaccgg gcagatcgcc
2401 cgccacgacc aactcgctc acctgactat tggaccaaac agctacgtaa
2451 cactgtccgg ttccatgaca ctgtcgtctg cctgctcggg gcgggtgagc
2501 aggttttctt ggaactttca cctcaccggg tgttgacaca agcgatcacc
2551 gacaccgtcg aacaagccgg cggcgcgggc gcagcagtgc cagctctacg
2601 caaggatcgc cctgatgctg tcgcttcgc tgacgactc ggccagctgc
2651 actgccatgg catcagccca tcttggaatg ttctttactg ccaggcccg
2701 cccctcacac tgccaccta cgctttccag catcagcgtt actggctgct
2751 gccacccgct ggtgatttca gcggggccaa taccacgcc atgcatccg

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FIGURE 8

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2801 tgctagacac cgccaccgaa ctggccgaaa accgcggatg ggtgttcacc
2851 ggccggatca gcccacgcac ccaaccatgg ctaaaccgaac acgccgtcga
2901 atcagccgtg ctgttcccga acaccggatt tgtcgagcta gcgctgcatg
2951 tcgctgaccg tgccggatat tcctcgggtca acgaactgat cgtgcacacc
3001 cccctgctgc tcgctggcca cgacaccgcy gatctacaga tcaccgtcac
3051 cgacaccgat gacatgggcc ggcagtctct taacatccac tcgcaccac
3101 atatcggcca tgacaacacc accaccggcg atgaacaacc cgagtgggtc
3151 ctgcatgcca gcgcagtcct gaccgcacaa accaccgacc acaaccacct
3201 cccctaacg cctgtgccgt ggccctccacc cggcacagcc gcgatcgagg
3251 tggatgactt ctacgacgac ctggctgcac agggctacaa ctacggcccg
3301 acattccaag gtgtgcaacg gatatggcgt gaccacgcca caccgatgt
3351 catctacgcc gaagttgaac taccggaaga caccgacatc gacggctacg
3401 gcatccaccc cgccctattc gacgcggtt tacacccctt actcgccctg
3451 acccaacccc ccaccaacga caccgatgac accaaccacg cagacaccgg
3501 ggacagggtg cggctgcctt acgcctttac cggcatcagt ttgcacgcca
3551 cccacgcccac ccgattgcgg gtacggctga cccgtaccgg cgcgatgcc
3601 atcaccgtgc acaccagtga caccacgga gcccgggtg cgatcatcga
3651 ctcatgtatc acccgcccc tcaccaccgc cacagggtct gctcgggcaa
3701 ccacagcagc tggcctaacta cacctgagct ggccaccaca cctgacacc
3751 acgaccgaca ccgacaccga caccgatgcc ctgcggtatc aggtgatcgc
3801 cgaaccact caacaactgc cccgtacct gcacgacct caaccagca
3851 ccgactgca caccgacc accgaagcag acgtgggtgt gtggccggta
3901 ccggtgccc gcaacgaaga gctccaggca caccaagcat ccgacaccgc
3951 ggtgtcttct cggatacaca cctgacccg ccaaacactt accgtggtgc
4001 aggactggct cactacccc gacaccacc gcacccgact ggtcatcgtg
4051 acccgccacg gcgtcagcac cagtgcacc gaccgggtcc ccgacctagc
4101 ccaogccgca gtgtggggcc tgatccgcag cgcacaaaac gaacaccccg
4151 gacgcttacc actgctcgac accgacgaca acaccaacag cgacaccctc
4201 accaccgccc taacctgcc aaccgcgaa aaccaactgg ccatacgccg
4251 cgacaccatc cacatcccc gcctgacccg acacagcagt gacggtgccg
4301 tcaactgcgc ggtggtggtg gatcctgagg gcacgggtgt gatcaccggg
4351 gggaccggga cgtgggtgc cttgttcgcc gagcatctgg tttctgcca
4401 tgggtgtccg catctgttgt tgacctcgcg gcgcggacct caggccacg
4451 gtgccaccga tctgcagcag cggctcaccg atctaggtgc tcatgtcacc
4501 atcacggcct gcgatatcag cgaccocgaa gcaactggcc ccctggtcaa
4551 ttcagtgccc acacaacacc gtttaacgc ggtagtgcac accgcgcgg
4601 tattggccga cccccggtc accgagttga ccggcgatca actcgaccag
4651 gtgttgccc ccaaaatcga cgcggcatgg cagctgcacc aactcaccta
4701 cgaacacaac ctgtctgcat tcattcatgtt ctctccatg gccggaatga
4751 taggcagtc ccgtcagggt aactacgccc cagccaacac cgcgttagat
4801 gctctcgccg actaccgcca ccgctgggc ttgcccggga ccagcctggc
4851 ctggggctac tggcagactc acaccggtct caccgcgat ctaaccgatg
4901 tagatctagc ccgatgacc cgcctgggtt tgatgcccac cgcaccagc
4951 caccgactgg ccctgttcga tgccgcccgc gccaccggac agcccgtttc
5001 gataccgccc ccgatcaaca cccacacct ggcccgcac gcccgcgaca
5051 acaccctggc ccgatcctg tctgcgctga tcaccacacc accgcccgg
5101 gcgcctctg ccgcaaccga tctcgtcgc cgctcaacg gacttagccc
5151 ccaacagcaa caacaaacac tgccacctt cgtggccgg gccaccgcca
5201 ccgtgctggg ccaccacacc ccgaagca tcagcccagc caccgcgttc
5251 aaagacctcg gaatcgattc gctgacgccc cttgaactgc gcaacacctt
5301 caccacaac accggcctca accttcgtc cactcttatc ttcgatcacc
5351 ccacacocca tgcggtggcc gagcatctgc ttgaacagat ccctggcatc
5401 ggtgccctgg tgccggctcc ggtggtgatc gcagctggtc gtaccgagga
5451 gccggtggcg gtggtgggga tggcgtgtcg tttcccgggt ggtgtcgcac
5501 cagcgatca gttgtgggac ttggtgatcg ctggccgtga tgtggtgggt
5551 aattttccgg ccgatcgggg ttgggatgtg gagggactgt ttgatccgga
5601 tccggacgcy gtcggcaaaa cctacaccgc ttacggcgcg ttccttgacg

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FIGURE 8(continued)



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5651 atgcggcagg ttttgatgcc ggggttctttg ggatctctcc acgggaggca
5701 cgcgcgatgg acccccagca gcggctgctg ctggaggtgt gctgggaagc
5751 gctagaaacc gcgggtattc ccgcgcacac cttggccggc acctccaccg
5801 gggatttcgt cggagcctgg gccacgtcct acggcgccac caactccgat
5851 gacgctgagg ggtatgcgat gaccggcggc gcgactagcg tcatgtccgg
5901 ccgatccgcc tacaccttgg gcctagaagg tccagcgatc accgttgaca
5951 ccgcctgctc gtcatcgctg gtggcaattc acctggcctg ccaatcctta
6001 cgcaacaacg aatcccagct agcaactggc ggcgcgctca ccgtgatgag
6051 cacacctgcg gttttcaccg agttctcccg ccaacgcggc ctggccccag
6101 atggacgctg caaagccttc gccgctaccg ccgatggcac cggctggggg
6151 gaaggcgccg cggctcttgg ccttgaacgg ctctccgagg cccgccgcaa
6201 caaccacccg gtccttgcca tcgtcgctgg atcggcgatc aaccaagacg
6251 gcgcatccaa cggactgacc gcaccccacg gcccgtcaca acaacgcgtc
6301 atcaaccaag cactagccaa cgccggcctc acccagcacc aggtcgacgc
6351 cgtcgaagcc cacggcaccg gcaaccacact gggtgacccc atcgaagcca
6401 gcgcccatac cgccacctac ggcaccacc acacgcccga tcaaccgctt
6451 tgggtgggat ccatcaaatc caacatcggc cacaccgaag ccgccgccgg
6501 cgccgcgggt gtggtcaaga tgatccaagc catcaccac gccaccttgc
6551 ccgccacctt gcacgtcgac caaaccagcc cccacatcga ctggtccagc
6601 gccacagtcg gactcctaac cgagcccatc caatggccca acaccgacca
6651 ccccgcgacc gcggcggtgt cctcattcgg catcagcggc accaacgccc
6701 acctcactct ccaacaaccc cccaccctta accccacaca aaccccgag
6751 gactgcagcc ccgcacaatc tccctgcgca acaatcaccg atgcaggcac
6801 gggattatcg tttgtgccct gggtgatttc agcgaagtgc gctgaggcgt
6851 tgtctgcgca ggcgagccga ttgttgacgc gccttgacga tgatccagtt
6901 gtcgatgcaa tcgacctggg gtggtcattg atagccactc gatcgatgtt
6951 tgagcatcgc gcagtagttg tgggtgcgga tcgtcaccag ttgcagcgcg
7001 ggttggccga gttggcttct ggtaaacttg gcgccgatgt agtggtgggc
7051 cgggcccgcg cagcgggcca gactgtaatg gtgtttcccg gtcagggatc
7101 acagcggttg ggcattggcg cgcagcttta tgaacaattc ccggtattcg
7151 cggcgcggtt tgatgacgtt gttgatgcgc tggaccagta tctgcggttg
7201 ccgctacgcc aagttatgtg gggtgacgat gaaggcctgc tcaattcaac
7251 ggagttcgcc cagccgtcgt tgtttgctgt cgaggtcgca ctggttgctg
7301 tcgtgcgctt ctggggtgtc gttccggatt acgtgatagg ccattcggtg
7351 ggagagcttg ccgctgcaca agtggctggc gttttgagcc tgcaggacgc
7401 ggctaaatta gtttcagcgc ggggccgact gatgcaggcc ctgcccgcg
7451 gtggagcgat ggtcgcggtg gccgccagcc agcatgaagt cgagcctttg
7501 ctggttgaag ggtcgatat cgcggcgctc aatgcgccag ggtcagttgt
7551 gatctctggt gatcaggcgg cagtccgttt gatcgcta atcgattggcg
7601 ataggggcta cagggcgcac gaaacttgcg tttcgcatgc ctttcattca
7651 tcgttgatgg agccgatgtt ggaaggagtt gctcggtcgt cttctgaaat
7701 cgttgtggag caaccgcaga ttccactgat ttcgaaactg actggtcagc
7751 tggccaacgc cgaactacggg tcggcagggt actgggtgga ccacatccgc
7801 cgtccagtcg gtttcgccga tagtgtcgct tcgttggag ccattggggg
7851 tagctgcttc attgaagtgc gtccagccag cgggttgggc gcagctatcg
7901 agcaatcctt gaaatctgcc gagccgaccg tgtcagtgtc ggcactgtcc
7951 accgataaac ctgaatccgt cgcgctattg cgcgctgcag cagcactttc
8001 cacctccggc attcctgtgg attggcagtc ggtgttcgac ggccgcagca
8051 ccagacaggt taacctgccc acctacgcct tccagcgcca acggttctgg
8101 ctcgacgcca accgtatcgg tcaaggcgat cccgccagtc aaccacaggc
8151 ccagaacggt gaatcccggt tttgggaggc ggtcgagcgg gaagacgttg
8201 atggttggc tgattctata ggtgtcaccg ccagtgccat gcagaccgtg
8251 ctacctgcat tgtcttcatg gcgtcgcgcg gacgcacac agtccgagct
8301 tgattcctgg cgctatcagg tgacatggct gtcttcccc gcaacgccga
8351 gttcgatcac gctgtccggc atttggttgc tgatagttcc aagcgaactt
8401 gcaaagactg acccagta attggtgtgt gcagcgctcg aagcgacgg
8451 cgccttagtc acgattatca caattttcga gccggacttc aatcgctcat

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FIGURE 8(continued)

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8501  tgatgggccc  ttccctaaaa  gatatacggtt  cacacatata  tgggtgcata
8551  tcgttcttag  ggattcacgg  gtccgaattc  tccgatagcg  gcgcgggtcaa
8601  gacattaaat  cttgtgcaag  caatgggcga  tgtccactta  gacgttcctt
8651  tgtggtgcct  aacgcagggc  gcggtatcga  tcagcgccga  cgatttgatc
8701  cgatgctcgt  cagcagccct  ggtgtgggg  ctggggagag  tcgtcgcatt
8751  agagcaccgg  ggatcgtggg  gtggcttagt  agacctcccc  gagtaccgg
8801  acgatgcagc  atgggagcgc  ttgtgcgccc  tcctcgcgca  gccgacggat
8851  gaagatcagt  ttgcgatcag  gccgtctggg  gttttcctac  ggagattgat
8901  ccacgccccg  gcaaccacga  catccaaatc  ctcgaccgcg  tgggctccga
8951  gggggaccgt  gttaatcaca  ggccggcacag  gcgcgttagg  cgcacacgtc
9001  gcaaggtggt  tggccacaaa  atatgaatcg  gtagatttgc  tcttaaccag
9051  ccgtcgcggg  atggcagccg  atggagctac  agagctagt  gatgacctcc
9101  gcacggctgg  cgccagtgtg  acagtgcacg  cctgcgacgt  gacagaccgc
9151  acttcagtcg  aggtctgaat  agcaggtaaa  tcccttgatg  cggcttttca
9201  tcttgacgga  cgacaccagc  caactctgct  aacagaactc  gaggacgaat
9251  cctttagtga  cgaattggcg  ccgaagggtc  acggtgcccc  agtattgagt
9301  gacatcacgt  ctaacctcac  actatcagcg  tttgtcatgt  tctcgtcagt
9351  agccgggaatc  tggggcgcca  aaagtcaagg  cgcataatgct  gccgctaacc
9401  cattcttaga  ttgcgtcgcc  gagaaacggc  gcacgttggg  gttaccagca
9451  acatcggtcg  cttggggact  gtgggctggc  ggccgcatgg  gagaccggcc
9501  atccgcttcg  ggactaaacc  ttattggctt  gaaatcgatg  tcagcagatt
9551  tagctgtgca  ggcgctaagc  gacgocattg  acagaccgca  agcaacattg
9601  actgttgcca  gcgtcaactg  ggatcggttc  taccacacat  tcgctttggc
9651  gcgaccgagg  ccttctctac  acgaaatcac  agaggtaatg  gcttaccggc
9701  agtcgatgcg  ctcaagctct  gcacgcagcg  cgacgctcct  gacgagcaaa
9751  ttagccggac  taacggcgac  agaacagcgt  gcagtcaccc  ggaagtgggt
9801  ccttgatcaa  gccgcacccg  ttctcgggta  cgcctcaact  gagagtctcg
9851  atactcatga  gtcattcaaa  gacctcgat  ttgattcgct  gaccgocctt
9901  gaactgcgcg  accacctcca  aactgcgacc  ggccctcaacc  ttcgtccac
9951  tcttatcttc  gatcacccca  caccocatgc  ggtggccgag  catctgcttg
10001  aacagatccc  tggcatcggt  gccctggtgc  cggctccggg  ggtgatcgca
10051  gctggtcgta  ccgaggagcc  ggtggcggtg  gtggggatgg  cgtgctggtt
10101  ccccggtggt  gtgcacatcg  cggatcagtt  gtgggacttg  gtgatcgctg
10151  gccgtgatgt  ggtgggtaat  tttccggccg  atcgggggtg  ggatgtggag
10201  ggactgtttg  atcccgatcc  ggacgcggtc  ggcaaaacct  acaccggtta
10251  cggcgcggtc  cttgacgatg  cggcagggtt  tgatgccggg  tcttttggga
10301  tctctccacg  ggaggcacgc  gcgatggacc  cccagcagcg  gctgctgctg
10351  gaggtgtgct  gggaagcgct  agaaaccgcg  ggtattcccg  cgcacacctt
10401  gccgggcacc  tccaccgggg  tattcgctcg  agcctggggc  cagtccctacg
10451  gcgccaccaa  ctccgatgac  gctgaggggt  atgcgatgac  cggcggcgcg
10501  actagcgtca  tgtccggccg  tatcgcttac  accttgggcc  tagaaggctc
10551  agcgatcacc  gttgacaccg  cctgctcgtc  atcgctgggt  gcaattcacc
10601  tggcctgcc  atccttacgc  aacaacgaat  cccagctagc  actggccggc
10651  ggcgtcaccg  tgatgagcac  acctgcgggt  ttcaccgagt  tctcccgcca
10701  acgcggcctg  gccccagatg  gacgctgcaa  agccttcgce  gctaccgccc
10751  atggcaccgg  ctgggggtgaa  ggccgcggcg  tcttgggtcct  tgaacggctc
10801  tccgaggccc  gccgcaacaa  ccaccgggtc  cttgcgatcg  tcgctggatc
10851  ggcgatcaac  caagacggcg  catccaacgg  actgaccgca  cccacggccc
10901  cgtcacaaca  acgcgtcatc  aaccaagcac  tagccaacgc  cggcctcacc
10951  cagcaccagg  tcgacgcccgt  cgaagcccac  ggcaccggca  ccacactggg
11001  tgaccccatc  gaagccagcg  ccctacacgc  cacctacggc  caccaccaca
11051  cgcccgatca  accgctttgg  ctgggatcca  tcaaatccaa  catcgccac
11101  acccaagccg  ccgcggcgcg  cgccgggtgt  gtcaagatga  tccaagccat
11151  caccacggcc  accttgcccg  ccaccttgca  cgtcgacca  cccagcccc
11201  acatcgactg  gtccagcggc  acagtccgac  tcctaaccga  gcccatccaa
11251  tggccacaaca  ccgaccaccc  ccgcaccgcg  gcggtgtcct  cattcgccat
11301  cagcggcacc  aacgcccacc  tcacccctca  acaaccccc  acccctaacc

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FIGURE 8(continued)

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11351 ccacacaaac ccccgaggac tgcagcccg cacaatctcc ctgcgcaaca
11401 atcaccgatg caggcaocggg attatcggtt gtgccctggg tgatttcagc
11451 gaagtcggct gaggcggttg ctgcgcaggg gagccgattg ttgacgcgcc
11501 ttgacgatga tccagttgtc gatgcaatcg acctgggggtg gtcatgtata
11551 gccactcgat cgatgtttga gcatcgcgca gtagttgtgg gtgcggatcg
11601 tcaccagttg cagcgcggtt tggccgagtt ggcttctggt aacttgggcg
11651 ccgatgtagt ggtgggcccgg gcccgcgag cgggcgagac tgtaatggtg
11701 tttcccggtc agggatcaca gcggttgggc atgggcgcgc agctttatga
11751 acaattcccc gtattcgcgg cggcggttga tgacgttgtt gatgcgctgg
11801 accagtatct gcggttgccg ctacgccaag ttatgtgggg tgacgatgaa
11851 ggctgctca attcaacgga gttcgcccg ccgtcggttg ttgctgtcga
11901 ggtcgactg tttgcgttgc tgcgcttctg ggtgtgcgtt ccggattacg
11951 tgataggcca ttcggttagga gagctggccg ctgcacaagt ggtcgcggtt
12001 ttgagcctgc aggacgcggc taaattagtt tcagcgcggg gccgactgat
12051 gcaggccctg cccgcgggtg gagcgatggt cgcggttagc gccagccagc
12101 atgaagtcga gcctttgctg gttgaagggg tcgatatcgc ggcgctcaat
12151 gcgccagggt cagttgtgat ctctggtgat caggcggcag tccgtttgat
12201 cgtaaatcga ttggcggata ggggctacag ggcgacgaa ctgcggtt
12251 cgcatacctt cattcatcg ttgatggagc cgatgttga ggagttcgct
12301 cggctcgctt ctgaaatcgt tgtggagcaa ccgcagattc cactgatttc
12351 gaacgtgact ggtcagctgg ccaacgcga ctacgggtcg gcaggttact
12401 ggttggaacca catccgcgt ccagtcggt tcgcgcatag tgcgcttcg
12451 ttggaagcca tgggggctag ctgcttcatt gaagtcggtc cagccagcgg
12501 gttgggcgca gctatcgagc aatccttgaa atctgccgag ccgaccgtgt
12551 cagtgtcggc actgtccacc gataaacctg aatccgtcgc cgtattgcgc
12601 gctgcagcac gactttccac ctccggcatt cctgtggatt ggcatcggt
12651 gttcgacggc cgcagcacc agacagttaa cctgccacc tacgccttcc
12701 agcggcaacg gttctggctc gacgccaacc gtatcggtca agcgatccc
12751 gccagtcacac cagcgccca gaacgttgaa tcccgttttt gggaggcggg
12801 cgagcgggaa gacgttgatg gcttggctga ttctataggt gtcaccgcca
12851 gtgccatgca gaccgtgcta cctgcattgt ctctatggcg tcgcgaggag
12901 cgacacacag ccgagcctga ttccctggcg tatcagggtg catggctgtc
12951 tccccagca acgcgcaggt cgatcacgct gtccggcatt tggttgctga
13001 tagttccaag cgaacttgca aagactgacc cagtaattgg atgtgctgca
13051 gcgctogaag cgcacggcgc cttagtacag attatcaca ttttcgagcc
13101 ggacttcaat cgctcattga tgggcgcttc cctaaaagat atcggttcac
13151 acatatctgg tgcataatcg ttcttaggga ttacgggtc cgaattctcc
13201 gatagcggcg cgtcaagac attaaatctt gtgcaagcaa tggcgatgt
13251 caacttagac gttcctttgt ggtgcctaac gcaggcgcg gtatcgatca
13301 gcgcgacga tttgatccga tgcctgcag cagccctggt gtggggtctg
13351 gggagagtcg tcgcattaga gcacccggga tcgtggggtg gcttagtaga
13401 cctccccgag tcaccogacg atgcagcatg ggagcgcttg tgcgccctcc
13451 tcgcgcagcc gacggatgaa gatcagttt cgatcaggcc gtctggggtt
13501 ttcctacgga gattgatcca cgcgccggca accacgacat ccaaatectc
13551 gaccgcgtgg gctccgaggg ggaccgtgtt aatcacaggc ggcacaggcg
13601 cgtaggcgc acacgtcgca aggtggttgg ccacaaaata tgaatcggtg
13651 gatttgctct taaccagcgg tcgcgggatg gcagccgatg gagctacaga
13701 gctagtggat gacctcgca cggctggcgc cagtgtgaca gtgcacgct
13751 gcgacgtgac agaccgcact tcagtcgagg ctgcaatagc aggtaaatcc
13801 cttgatgcgg tctttcatct tgcaggacga caccagccaa ctctgctaac
13851 agaactcgag gacgaatcct ttagtgacga attggcgccg aaggttcacg
13901 gtgccaagt attgagtac atcacgtcta acctcacact atcagcgttt
13951 gtcattgtct cgctcagtag cggaatctgg ggcggcaaaa gtcaaggcgc
14001 atatgctgcc gctaacgcac tcttagatcc gctcgccgag aaacggcgca
14051 cgttgggggt accagcaaca tcggtcgctt ggggactgtg ggtggcggc
14101 ggcattgggag accggccatc cgcttcggga ctaaacctta ttggcttgaa
14151 atcgatgtca gcagatttag ctgtgcaggg gctaagcgac gccattgaca

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FIGURE 8(continued)

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14201 gaccgcaagc aacattgact gttgcgagcg tcaactggga tcggttctac
14251 cccacattcg ctttggcgcg accgaggccc ttcctacacg aaatcacaga
14301 ggtaatggct taccgcgagt cgatgcgctc gagctctgca tcgacggcga
14351 cgctcctgac gagcaaatta gccggactaa cggcgacaga acagcgtgca
14401 gtcacccgga agttggctct tgatcaagcc gcatccgttc tcgggtacgc
14451 ctcaactgag agtctcgata ctcatgagtc attcaaagac ctcggtattg
14501 attcgctgac cgcccttgaa ctgcgcgacc acctccaaac tgcgaccggc
14551 ctcaaccttt cgtccactct tatcttcgat cccccacac cccatgcggt
14601 ggccgagcat ctgcttgaaac agatccctgg catcggtgcc ctggtgccgg
14651 ctccggtggg gatcgagct ggtcgtaccg aggagccggt ggcggtgggtg
14701 gggatggcgt gtcgtttccc cgggtggtgc gcatcagcgg atcagttgtg
14751 ggacttggtg atcgctggcc gtgatgtggt gggtaatttt ccggccgac
14801 ggggttggga tgtggaggga ctgtttgatc ccgatccgga cgggttcggc
14851 aaaacctaca cccgttacgg cgcgttccct gagcatgcgg caggttttga
14901 tgcgggttct tttgggatct ctccacggga ggcacgcgcg atggaccccc
14951 agcagcggtc gctgctggag gtgtgctggg aagcgctaga aaccgcgggt
15001 attcccgcg cacccttggc cggcacctcc accggggtat tcgtcggagc
15051 ctgggcccag tctacggcg ccaccaactc cgatgacgct gaggggtatg
15101 cgatgaccgg cggcgcgatc agcgtcatgt ccggccgtat cgcctacacc
15151 ttgggcttag aaggtccagc gatcacctgt gacaccgcct gctcgtcatc
15201 gctggtggca attcacctgg cctgccaatc cttacgcaac aacgaatccc
15251 agctagcact gaccggcggc gtcaccgtga tgagcacacc tgcgattttc
15301 accaggttct cccgccaaag cggcctggcc ccagatggac gctgcaaage
15351 cttcgcccgt accgcgcatg gcaccggctg gggtaaggc gccgcggtct
15401 tggctcctga acggctctcc gaggcggccc gcaacaacca cccggtcctt
15451 gcgatcgctg ctggatcggc gatcaaccaa gacggcgcat ccaacggact
15501 gaccgcaccc caccggccgt cacaacaacg cgtcatcaac caagcactag
15551 ccaacgccgg cctcaccac gaccaggtcg acgcgctcga agcccacggc
15601 accggcacca cactgggtga ccccatcgaa gccagcgccc tacacgccac
15651 ctacggccac caccacacg ccgatcaacc gctttggctg ggatccatca
15701 aatccaacat cggccacacc caagccgccc ccggcgccgc cgggtgtggtc
15751 aagatgatcc aagccatcac ccacgccacc ttgcccgcga ccttgacgt
15801 cgaccaaccc agccccaca tcgactggtc cagcggcaca gtcggactcc
15851 taaccgagcc catccaatgg cccaacaccg accacccccg caccgcggcg
15901 gtgtcctcat tcggcatcag cggcaccaac gcccaactca tctccaaca
15951 accccccacc cccgacacca cacaaccccc caacaccaca acaggttctg
16001 atcccgagc ggggttctgat cccgcagtg gtgtaactgt gtggccgttg
16051 tcagcgcggt cagcgccggg gttaagcgca caagcggccc gtctgtacca
16101 gcatctcagc gccaccccg atctggatcc gatcgatgta gccacagcc
16151 tggctaccac acgcagccac caocccacc gcgccaccat caccaccagc
16201 attgagcacc acagcgaaaa caaccacgac acaaccgatg cgtggccgc
16251 actgcacgcc ctggccaaca acggcacaca cccctgtctg agcagaggcc
16301 tgcagacccc acagggcccc ggcaaaacag tgttcgtgtt ccccgagacg
16351 ggcagtcaat accccggcat gggcgagat ctctaccgcc aattccccgt
16401 gttegccac gccctcgacg catgcgacgc agcgttacag ctttctactg
16451 gatggtcggt gctagctgtg ttacacgacg aacccgaggc cccgtcggtg
16501 gagcgagtcg atgtgggtcca gcctgtgttg ttctcggtga tgggtgcgtt
16551 agccgcactc tggcggtggg ccggaatcac ccccgatgca gtcacggcc
16601 actcccaggg cgagatcgcc gcggcacatg tggccggagc cctgaccttg
16651 ccggaagcag ctgcggtagt ggctttgcgc agccgtgtct tgaccacct
16701 ggccgggtgcc ggtgccatgg cttcagtgt atcgcccag gaaccactga
16751 cccagctgct ggcacggtgg gacggcaaga tctactgtgc cgcagttaac
16801 ggccccgcta gcgctgtggt ctccggcgat accacagcga tcaccgaatt
16851 gctgattacc tgcgaacacg aaaaatcgca cgctcgcgct atcccgttg
16901 actacccctc tcatccccc tataatggaac acatccgcca tcagttcctc
16951 gacgagctac ccgagctgac accgcggcca tcaaccatcg cgatgtattc
17001 caccgtcgac ggcgaacctc acgacaccgc ctacgacacc accacaatga

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FIGURE 8(continued)

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17051 ccgcggaacta ctggtaccgc aacatccgta acaactgtccg gttccatgac
17101 actgtcgctg ccctgtctcg ggcgggtgag cagggtttcc tggaaactttc
17151 acctaccccg gtgttgacac aagcgatcac cgacaaccgtc gaacaagccg
17201 gcggcggcgg cgcagcagtg ccagctctac gcaaggatcg ccctgatgct
17251 gtcgcgttcg ctgcagcact cggccagctg cactgccatg gcatcagccc
17301 atcctggaat gttctttact gccaggcccg cccoctcaca ctgcccacct
17351 acgctttcca gcatcagcgt tactggctgc tgcccaccgc tgggtatttc
17401 agcggggcca ataccacgc catgcatccg ctgctagaca ccgccaccga
17451 actggccgaa aaccgcggat ggggtttcac cggccggatc agcccacgca
17501 cccaaccatg gctaaacgaa cacgcgctcg aatcagccgt gctgttccca
17551 ggcaccggat ttgtcgagct agcgtgcac gtgcgtgacc gtgccggata
17601 ttctctgggc aacgaactga tcgtgcacac cccctgtctg ctgcgtggcc
17651 acgacaccgc ggatctacag atcaccgtca ccgacaccga tgacatgggc
17701 cggcagtcct ttaacatcca ctgcgcacca catatcgcc atgacaacac
17751 caccaccggc gatgaacaac ccgagtgggt cctgcatgcc agcgcagtc
17801 tgaccgcaca aaccaccgac cacaaccacc tccccctaac gcctgtgccg
17851 tggcctccac ccggcacagc cgcgatcgag gtggaagact tctacgacga
17901 cctggctgca cagggtctaca actacggccc gacattccaa ggtgtgcaac
17951 ggatatggcg tgaccacgac acaccgatg tcatctacgc cgaagttgaa
18001 ctaccgcgaag acaccgacat cgacggctac ggcatccacc ccgcctatt
18051 cgacgcgctt ttacaccccc tactcgccct gacccaaccc cccaccaacg
18101 acaccgatga caccaaacac gcagacaccg gtgaccaggt gcggctgccc
18151 tacgccttta ccggcatcag tttgcacgcc acccaccgca cccgattacg
18201 ggtacggctg acccgtaacc gcgcgatgc catcacgctg cacaccagtg
18251 acaccaccgg agcccgggtg gcgatcatcg actcattgat caccgcccc
18301 ctaccaccgg ccacagggtc tgctccggca accacagcag ctggcctact
18351 acaccctgagc tggccaccac accctgacac cagcacgac accgacaccg
18401 acaccgatgc cctgcggtat cagggtgatc ccgaaaccc tcaacaactg
18451 ccccgctacc tgacgacct acacaccagc accgacctgc acaccagcac
18501 caccgaagca gacgtggttg tgtggcgggt accggtgccc agcaacgaag
18551 agctccagga acaccaagca tccgacaccg cgggtgtctc tcggatacac
18601 accctgaccc gccaaacact taccgtgggt caggactggc tcaactaccc
18651 cgacaccacc ggaccccgac tggtcacgtg gacccgccac ggctgcagca
18701 ccagtgcaca cgaccgggtc cccgacctag cccacgcgc agtgtgggc
18751 ctgatccgca gcgccccaaa cgaacacccc ggacgcttca cactgctcga
18801 caccgacgac aacaccaaca gcgacacct caccaacgcc ctaaccctgc
18851 caaccgcga aaaccaactg gccatacgcc gcgacacat ccacatccc
18901 cgctgaccc gacacagcag tgacgggtgc ctaactgcgc cgggtggtgt
18951 agatcctgag ggcacggtgt tgatcacccg ggggacggg acgctgggtg
19001 cctgttctgc cgagcatctg gtttctgccc atggtgtccg gcatctgttg
19051 ttgacctcgc ggccgggacc tcaggccacc ggtgccaccg atctgcagca
19101 gcggctcacc gatctagggt ctcatgtcac catcacggcc tgcgatatca
19151 gcgacccgga agcactggcc gccctggtca attcagtgcc cacacaacac
19201 cgtttaaccg cgttagtgca caccgcgcgc gtattggccg acaccgggt
19251 caccgagttg accggcgatc aactcgacca ggtgtggcc cccaaaatcg
19301 acgcggcatg gcagctgcac caactcacct acgaaacaa cctgtctgca
19351 ttcacatgt tctcgtccat ggccggaatg ataggcagtc ccggtcaggg
19401 taactacgcg gcagccaaca ccgcgttaga tgctctcgcc gactaccgcc
19451 accgcctggg cttgcccgcg accagcctgg cctggggcta ctggcagact
19501 cacaccggtc tcaccgcgca tctaaccgat gtagatctag cccgcatgac
19551 ccgcctgggt ttgatgcccc tcgccaccag ccacggactg gccctgttcg
19601 atgccgccct cgccaccgga cagcccgttt cgataccgc cccgatcaac
19651 acccacaccc tggcccgaca cgcccgcgac aacacccctg ccccgatcct
19701 gctgcgctg atcaccacac cagggcgccg ggcggcctct gccgcaaccg
19751 atctcgctgc ccgcctcaac ggacttagcc cccaaacgca acaacaacaa
19801 ctggccaccc tcgtggccgc ggccaccgcc accgtgtgg gccaccacac
19851 ccccgaaagc atcagcccag ccaccgcgtt caaagacctc ggaatcgatt

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FIGURE 8(continued)

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19901 cgctgacccgc ccttgaactg cgcaacaccc tcacccacaa caccggcctg
19951 gatctgcccc ccaccctcat ctctgatcac cccacacccc atgcggtggc
20001 cgagcatctg cttgaacaga tccctggcat cggtgccctg gtgccggctc
20051 cgggtggtgat cgagctggt cgtaaccgag agccggtggc ggtggtgggg
20101 atggcggtgc gtttccccgg tgggtgcgca tcagcggatc agttgtggga
20151 cttggtgatc gctggccgtg atgtggtggg taattttcgg gccgatcggg
20201 gttgggatgt ggagggactg tttgatcccg atccggacgc ggtcggaaca
20251 acctacaccc gttacggcgc gttccttgac gatcggcgag gttttgatgc
20301 cgggttcttt gggatctctc cacgggaggc acgcgcgatg gacccccagc
20351 agcggctgct gctggagggt tgctgggaag cgctagaaac cgcgggtatt
20401 cccgcgcaca ccttggccgg caccctccac ggggtattcg ccggagcctg
20451 ggcccagtc taccggcgca ccaactccga tgacgctgag gggatgcca
20501 tgaccggcgg ctgactagc gtcatgtccg gccgatcgc ctacaccttg
20551 ggccctagaag gtccagcgat caccgttgac accgcctgct cgtcatcgct
20601 ggtggcaatt cacctggcct gccaatcctt acgcaacaa gaatcccagc
20651 tagcactggc cggcggtgc accgtgatga gcacacctgc ggttttcacc
20701 gagttctccc gccaacgcgg cctggcccac gatggacgct gcaaagcctt
20751 cgccgctacc gccgatggca ccggctttgg tgaaggcgcc gcggtcttgg
20801 tccttgaacg gctctccgag gcccgccgca acaaccaccc ggtccttgcg
20851 atcgctcgct gatcgcgcat caaccaagac ggcgcaccca acggactgac
20901 cgcacccac caccacgcac aacaacgcgt catcaacca gactagcca
20951 acgcccgcct caccacgcac caggctgacg ccgtcgaagc ccacggcacc
21001 ggcaaccac tgggtgacct catcgaagcc agcgccctac acgccacctt
21051 cggccaccac cacacgccc atcaaccgct ttggtggga tccatcaaat
21101 ccaacatcgg ccacacccaa gccgcgcggc gcgcccggc tgtggtcaag
21151 atgatccaag ccatacccca cgccaccttg cccgccacct tgacgtcga
21201 ccaacccagc ccccatctg actggtccag cggcacagtc cgactcctaa
21251 ccgagcccat ccaatggccc aacaccgacc acccccgcac cgcggcggtg
21301 tcctcattcg gcatcagcgg caccaacgcc cacctcatcc tccaacaacc
21351 cccaccccc gacaccacac aaacccccaa cccacacaa ggttctgac
21401 ccgcagtggg ttctgatccc gcagtgggtg tactggtgtg gccgtgtca
21451 gcgcgttcag cgcgggggtt aagcgcacaa gcgcccgcgc tgtaccagca
21501 tctcagcgcc caccocgatc tggatccgat cgtatgagcc cacagcctgg
21551 ctaccacag cagccaccac cccacccgc ccaccatcac caccagcatt
21601 gagcaccaca gcgaaaacaa ccacgacaca accgatgcgc tggccgcact
21651 gcacgcccgt gccacaacg gcacacaccc cctgctgagc agaggcctgc
21701 tgaccccaaa gggcccgccg aaaacagtgt tcgtgttccc cggacagggc
21751 agtcaatacc ccggcatggg cgcagatctc taccgccaat tcccgtgtt
21801 cgcacacgcc ctgcagcagg tcgctgcggc gctgaacccg catctcgatg
21851 ttgcgttgct tgaggtgatg ttcagccaac aagacactgc catggcgcaa
21901 ctgctggacc agaccttcta tgcacaaccg gcgttggtcg cgtgggaac
21951 cgctctacat cgattgttca cccacgcccg tatccaccgg gactacctgc
22001 taggccaact catcgagaaa ctacccgcgg catacgcgcg cgggtgtgctg
22051 tcactgcaag acgcagccac cttggtcaca agccgaggac gactgatgca
22101 atcctgcacg cccggcggga cgatgctcgc actacaagcc agcgaagcag
22151 aagtacaacc gctgcttgaa ggcctagacc acgcccgtgc catcgccgcg
22201 atcaacggag caacgtcgat cgtactgtca ggagatcacg acagcctcga
22251 acaaatcggc gagcatttca ttacccaaga tcgacgtacc acccgactgc
22301 aggtcagtca cgctttccac tctccacata tggaccccat cctcgaacaa
22351 ttccgccaga tcgcgcccca actcaccttc agcgacccca cctgcccatt
22401 cttgtccaac ctacccgggc agatcgcccg ccacgaccaa ctgcctcac
22451 ctgactattg gacccaacag ctacgtaaca ctgtccgggtt ccattgacct
22501 gtcgctgccc tgctcggggc gggtagcag gttttcctgg aactttcacc
22551 tcacccgggtg ttgacacaag cgatcaccga caccgtcgaa caagccggcg
22601 gcggcgccgc agcagtgcga gctctacgca aggatcgccc tgatgctgtc
22651 gcgttcgctg cagcactcgg ccagctgcac tgccatggca tcagcccatc
22701 ctggaatgtt ctttactgcc aggccgcgcc cctcacactg cccacctacg

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FIGURE 8(continued)

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22751 ctttcagca tcagcgttac tggtgtgtgc ccaccgtgg tgatttcagc
22801 ggggccaata cccacgccat gcatccgtg ctagacaccg ccaccgaact
22851 ggccgaaaac cgcggtatggg tggtcaccgg ccggtacagc ccacgcacc
22901 aaccatggct aaacgaacac gccgtcgaat cagccgtgtt gttcccaggc
22951 accggatttg tcgagctagc gctgcatgtc gctgaccgtg ccggtatctc
23001 ctcggtcaac gaactgatcg tgcacacccc cctgtgtgtc gctggccacg
23051 acaccgcgga tctacagatc accgtcaccg acaccgatga catgggcccg
23101 cagtctctta acatccactc gcgcccacat atcgcccatg acaacaccac
23151 caccggcgat gaacaaccgc agtgggtcct gcatgccagc gcagtctga
23201 ccgcacaaac caccgaccac aaccacctcc ccctaaccgc tgtgccgtgg
23251 cctccaccgc gcacagccgc gatcgagggt gatgacttct acgacgacct
23301 ggctgcacag ggctacaact acggcccgc acctcaagggt gtgcaacgga
23351 tatggcgtga ccacgccaca ccggtatgta tctacgccga agttgaacta
23401 ccggaagaca ccgacatcga cggctacggc atccaccccg ccctattcga
23451 cgccgcttta cccccctac tcgcccgtgc ccaaccccc accaacgaca
23501 ccgatgacac caacaccgca gacaccgtg accaggtgcg gctgccctac
23551 gcctttaccg gcatcagttt gcacgccacc cagccacccc gattgcgggt
23601 acggtgacc cgtaccggcg ccgatgccat caccgtgcac accagtga
23651 ccaccggagc ccggtggcg atcatcgact cattgatcac ccgccccctc
23701 accaccgcca cagggtctgc tcgggcaacc acagcagctg gcctactaca
23751 cctgcagctg ccaccacacc ctgacaccac gaccgacacc gacaccgaca
23801 ccgatgccct gcggtatcag gtgatcgccg aaccactca acaactgcc
23851 cgtacctgc acgacctaca caccagcacc gacctgcaca ccagcaccac
23901 cgaagcagac gtggttgtgt ggccggtacc ggtgccagc aacgaagagc
23951 tccaggcaca ccaagcatcc gacaccggcg tgtcttctcg gatacacacc
24001 ctgacccgcc aaacacttac cgtggtgcag gactggctca ctcaccccg
24051 caccaccggc acccgactgg tcactgtgac ccgccacggc gtcagcacca
24101 gtgcccacga ccggtccccc gacctagccc acgcccagc gtggggcctg
24151 atccgcagcg ccaaaaacga acaccccgga cgcttcacac tgctcgacac
24201 cgacgacaac accaacagcg acaccctcac caccgcccta accctgccaa
24251 ccgcgaaaaa ccaactggcc atacgcgcg acaccatcca catccccgc
24301 ctgacccgac acagcagtgga cgggtcgctc actgcgcggg tgggtgtaga
24351 tctgagggc acggtgttga tcaccggggg gaccgggacg ctgggtgctt
24401 tgttcgcga gcatctggtt tctgccatg gtgtccggca tctgttgtg
24451 acctcgcggc gcggacctca ggcccacggg gccaccgac tgcagcagcg
24501 gctcacggat ctagggtgtc atgtcaccat cagggcctgc gatatcagcg
24551 accccgaagc actggccgcc ctggtcaatt cagtgccac acaacaccgt
24601 ttaaccgcgg tagtgacac cgccgcggtg ttggccgaca ccccggtcac
24651 cgagttgacc ggcgatcaac tcgaccagggt gctggcccc aaaatcgacg
24701 cggcatggca gctgcaccaa ctcacctacg aacacaacct gtctgcattc
24751 atcatgttct cgtccatggc cggaatgata ggagtcctcg gtcagggtaa
24801 ctacgcggca gccaacaccg cgttagatgc tctcgccgac taccgccacc
24851 gcctgggctt gccgcgacc agcctggcct ggggctactg gcagactcac
24901 accggtctca ccgcgcattt aaccgatgta gatctagccc gcatgaccgc
24951 cctgggtttg atgcccattc ccaccagcca cggactggcc ctgttcgatg
25001 ccgccctcgc caccggacag ccggtttcga taccgcccc gatcaacacc
25051 cacaccctgg ccgcacacgc ccgcgacaac accctggccc cgatcctgtc
25101 tggcgtgatc accacaccac ggcccgggc ggccctctgc gcaaccgatc
25151 tcgtgcccc cctcaacgga cttagcccc aacagcaaca acaaacactg
25201 gccacccctg tggcgcgggc caccgccacc gtgtggggc accacacccc
25251 cgaaagcacc agcccagcca ccggttcaa agacctcgga atcgattcgc
25301 tgaccgccct tgaactgcgc aacaccctca cccacaacac cggcctggat
25351 ctgcccccca cctcatctt cgatcaccac acaccccatg cgggtggcga
25401 gcatctgctt gaacagatcc ctggcatcgg tgccctgggt ccggtccgg
25451 tgggtatcgc agctggctcg accgaggagc cggtgccggg ggtggggatg
25501 gcgtgtcggt tccccgggtg tgtcgcatca gcggatcagt tgtgggactt

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FIGURE 8(continued)

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25551 ggtgatcgct ggccgtgatg tgggtggta a ttttccggcc gatcgggggtt
25601 gggatgtgga gggactgttt gatcccgat c cggacgcggt cggcaaaacc
25651 tacacccgtt acggcgcggt ccttgacga t gcggcaggtt ttgatgccgg
25701 gttctttggg atctctccac gggaggcac g cgcgatggac cccagcagc
25751 ggctgctgct ggaggtgtgc tgggaagcg c tagaaaccgc gggatttccc
25801 ggcacacact tggccggcac ctccaccgg g gtattcgccg gagcctgggc
25851 ccagtectac ggcgccacca actccgatga c gctgagggg tatgcatga
25901 ccggcgcgcg gactagcgtc atgtccggc c gtatcgcta caccttgggc
25951 ctagaaggtc cagcgatcac cgttgacac c gcctgctcgt catcgctggt
26001 ggcaattcac ctggcctgcc aatccttac g caacaacgaa tcccagctag
26051 cactggccgg cggcgtcacc gtgatgagc a cacctgcggt ttaccagg
26101 ttctcccgcc aacgcggcct ggcccagat g gacgctgca aagccttcgc
26151 cgctaccgcc gatggcaccg gctttgggtg a aggcgcgcg gtcttgggtc
26201 ttgaacggct ctccgaggcc cgcgcacaa accaccgggt ccttgcgac
26251 gtcgctggat cggcgatcaa ccaagacgg c gcatccaacg gactgaccg
26301 accccacggc cgtcaccaac aacgcgtca t caaccaagca ctagccaacg
26351 ccggcctcac ccacgaccag gtcgacgcg c tcgaagccca cggcaccggc
26401 accacactgg gtgaccccat cgaagccag c gccctacacg ccacctacgg
26451 ccaccaccac acgcccgatc aaccgcttt g gctgggatcc atcaaatcca
26501 acatcggcca cacccaagcc gccgcggcg c ccgcgggtg gtcaagatg
26551 atccaagcca tcaccacgc caccctgccc gccacctgc acgtcgacca
26601 acccagcccc cacatcgact ggtccagcg c cacagtccga ctctaaccg
26651 agcccatcca atggcccaac accgaccac c ccgcaccg ggcggtgtcc
26701 tcattcggca tcagcggcac caacgccc a ctcatcctcc aacaaccccc
26751 ccccccgac accacacaaa ccccaacac c cacaacaggt tctgatcccg
26801 cagtgggttc tgatcccgca gtgggtgtac tgggtgtggc gttgtcagcg
26851 cgttcagcgc cggggttaag cgcacaagc g gcccgctgt accagcatct
26901 cagcggccac ccgatctgg atccgatcg a tgtagccac agcctggcta
26951 ccacacgcag ccaccacccc caccgcgcca ccatcaccac cagcattgag
27001 caccacagcg aaaacaacca cgacacaac c gatgcgctgg ccgcaactga
27051 cgccctggcc aacaacggca cacaccccc t gctgagcaga ggctgctga
27101 cccacaggg ccccgcaaa acagtgttc g tgttccccg acagggcagt
27151 caatacccg gcattggcg c agatctctac cgcgaattcc ccgtgttcgc
27201 ccacgcccct c gacgatcg c acgcagcgt t acagcctttc actggatggt
27251 cgggtgctagc tgtgttacac gacgaaccg c aggcgccgtc gttggagcgg
27301 gtcgattgtg tocagcctgt gttgttctc g gtgatgggt cgttagccgc
27351 actctggcgg tgggcgggaa tcacccccg a tgcagtcac ggccaactccc
27401 agggcgagat cgcgcgggca catgtggcc g gagccctgac cttgcccgaa
27451 gcagctgcgg tagtggttt gcgcagccg t gtcttgaccg acctggccgg
27501 tgccgggtgc atggcttcag tgctatcgcc cgaggaacca ctgaccacgc
27551 tgctggcacg gtgggacggc aagatcact g tcgcgcagc taacggcccc
27601 gctagcgtg tgggtctcgg cgataccaca gcgatcacg aattgtgat
27651 tacctgcgaa cagcaaaaca tcgacgctc g cgtatcccc gtggactacc
27701 cctctcattc cccctatatg gaacacatcc gccatcagtt cctcgacgag
27751 ctacccgagc tgacaccgcg gccatcaacc atcgcgatgt attccaccgt
27801 cgacggcgaa cctcacgaca ccgcctacga caccaccaca atgaccgcgg
27851 actactggta ccgcaacatc cgtaaacct g tccggttcca tgacactgtc
27901 gctgccctgc tcggggcggg tgagcaggt t ttctggaac ttccacctca
27951 cccggtgttg acacaagcga tcaccgacac cgtcgaacaa gccggcgcg
28001 gcggcgagc agtgccagct ctacgcaag g atcgccctga tgctgtcgcg
28051 ttcgctgcag cactcggcca gctgcactgc catggcatca gcccatcctg
28101 gaatgttctt tactgccagg cccgccccct cacaactgcc acctacgctt
28151 tccagcatca gcgttactgg ctgctgccca ccgctggtga ttccagcggg
28201 gccaatatccc acgccatgca tccgctgcta gacaccgcca ccgaactggc
28251 cgaaaaccgc ggatgggtgt tcaccggcc g gatcagccca cgcacccaac
28301 catggtctaa cgaacacgcc gtcgaatcag ccgtgctgtt cccaggcacc
28351 ggatttgtcg agctagcgct gcatgtcgct gaccgtgccg gatattcctc

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FIGURE 8(continued)



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28401 ggtcaacgaa ctgatcgtgc acacccccct gctactcgtt ggccacgaca
28451 ccgcggatct acagatcacc gtcaccgaca ccgatgacat gggccggcag
28501 tctcttaaca tccactcgca cccacatatc ggccatgaca acaccaccac
28551 ccgcgatgaa caacccgagt gggtcctgca tgccagcgca gtcctgaccg
28601 cacaaaccac cgaccacaac cacctcccc taacgcctgt gccgtggcct
28651 ccaccoggca cagcccgat cgaggtggat gacttctacg acgacctggc
28701 tgacacgggc tacaactacg gcccgacatt ccaaggtgtg caacggatat
28751 ggcgtgacca cgccacaccc gatgtcatct acgccgaagt tgaactacc
28801 gaagacaccg acatcgacgg ctacggcatc caccocgccc tattcgacgc
28851 cgctttacac cccctactcg ccttgaccca acccccacc aacgacaccg
28901 atgacaccaa caccgcagac accggtgacc aggtgcggct gccctacgcc
28951 tttaccggca tcagtttgca cgccacccac gccaccgat tgcgggtacg
29001 gctgacccgt accggcgccg atgccatcac cgtgcacacc agtgacacca
29051 ccggagcccc ggtggcgatc atcgactcat tgatcaccog cccctcacc
29101 accgccacag ggtctgctcc ggcaaccaca cgagctggcc tactacacct
29151 gagctggcca ccacaccctg acaccacgac cgacaccgac accgacaccg
29201 atgccttgcc gtatcgggtg atcgccgaac cactcaaca actgccccgc
29251 tacctgcacg acctacacac cagcaccgac ctgcacacca gcaccacga
29301 agcagacgtg gttgtgtggc cggtaaccgt gccacgaac gaagagctcc
29351 aggcacacca agcatccgac accgcggtgt cttctcggt acacaccctg
29401 acccgccaaa cacttacgt ggtgcaggac tggctcact accccgacac
29451 caccggcacc cgactggcca tcgtgacccg ccacggcgtc agcaccagt
29501 cccacgaccc ggtccccgac ctagcccaag ccgcagtgtg gggcctgatc
29551 cgcagcgccc aaacgaaca cccgggacgc ttcacactgc tcgacaccga
29601 cgacaacacc aacagcgaca ccctcaccac cgccctaacc ctgccaaccc
29651 gcgaaaacca actggccata cgcccgacga ccattccat cccccgctg
29701 acccgacaca gcagtgcagg tgcgctcact gcgcccgttg tggtagatcc
29751 tgagggcacg gtgttgatca ccggggggac cgggacgctg ggtgccttgt
29801 tcgcccagca tctgggttct gcccatggtg tccggcatct gttgttgacc
29851 tcgcccgcgc gacctcaggc ccacgggtgc accgatctgc agcagcggt
29901 caccgatcta ggtgctcatg tcaccatcac ggcctgcgat atcagcgacc
29951 ccgaagcact ggccgcccct gtcaattcag tgccacaca acaccgttta
30001 acccgcgtag tgacacccgc cgcggtattg gccgacaccc cggtcaccga
30051 gttgacgggc gatcaactcg accaggtgct gggcccaaaa atcgacggcg
30101 catggcagct gcaccaactc acctacgaac acaacctgtc tgcattcatc
30151 atgttctcgt ccatggccgg aatgataggc agtcccgtgc agggtaacta
30201 cgcggcagcc aacaccgctg tagatgctct cgcggactac cgccaccgcc
30251 tgggcttgcc cgcgaccagc ctggcctggg gctactggca gactcacacc
30301 ggtctcaccg cgcattctaac cgtatgatag ctagcccgca tgaccgcct
30351 gggtttgatg cccatcgcca ccagccacgg actggccctg ttcgatgccg
30401 ccctcgccac cggacagccc gtttcgatac ccgcccgat caacaccac
30451 accctggccc gacacgccc cgacaacacc ctggccccga tctgtctgc
30501 gctgatcacc acaccacggc gccggggcgc ctctgccgca accgatctcg
30551 ctgcccgcct caacggactt agccccaac agcaacaaca aacactggcc
30601 accctcgtgg ccgcgccac cgccaccgtg ctgggcccac acaccocga
30651 aagcatcagc ccagccaccg cgttcaaaga cctcggaatc gattcgctga
30701 ccgcccctga actgcgcaac accctcacc acaacaccgg cctggatctg
30751 ccccccaccc tcatcttcga tcacccaca cccatgcgg tggccgagca
30801 tctgcttgaa cagatccctg gcatcggtgc cctgggtgccc gctccggtgg
30851 tgatcgagc tggtcgtacc gaggagccgg tggcggtggg ggggatggcg
30901 tgctgcttcc ccggtggtgt cgcacagcg gatcagttgt gggacttggg
30951 gatcgctggc cgtgatgtgg tgggtaattt tccggcgat cggggttggg
31001 atgtggaggg actgtttgat cccgatccgg acgcggtcgg caaaacctac
31051 acccgttacg gcgcgttctt tgacgatgcg gcaggttttg atgccgggtt
31101 ctttgggata tctccacggg aggcacgcgc gatggacccc cagcagcgcc
31151 tgcgtctgga ggtgtgctgg gaagcgctag aaaccgccc tattcccgcg
31201 cacaccttgg ccggcacctc caccggggta ttcgcccggg cctgggccc

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FIGURE 8(continued)

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31251 gtcctacggc gccaccaact ccgatgacgc tgaggggtat gcgatgaccg
31301 gcggcgcgac tagcgctcatg tccggccgta tcgcctacac cttgggccta
31351 gaaggtccag cgatcacccgt tgacaccgcc tgctcgatcat cgctgggtggc
31401 aattcacctg gcctgccaat ccttacgcaa caacgaatcc cagctagcac
31451 tggccgcgcg cgtcaccgtg atgagcacac ctgcggtttt caccgagttc
31501 tcccgccaac gcggcctggc cccagatgga cgctgcaaag ccttcgccgc
31551 taccgcccgt ggcaccggct ttggtgaagg cgccgcggtc ttggtccttg
31601 aacggctctc cgaggccgcg cgcaacaacc accgggtcct tgcgatcgtc
31651 gctggatcgg cgatcaacca agacggcgca tccaacggac tgaccgcacc
31701 ccacggcccg tcacaacaac gcgtcatcaa ccaagcacta gccaacgccg
31751 gcctcaccca cgaccaggtc gacgccgtcg aagcccacgg caccggcacc
31801 aactgggtg accccatcga agccagcgcc ctacacgcca cctacggcca
31851 ccaccacacg cccgatcaac cgctttgggt gggatccatc aaatccaaca
31901 tcggccacac ccaagccgcc gccggcgccg ccggtgtggt caagatgatc
31951 caagccatca cccacggcac cttgcccgcc accttgcaag tcgaccaacc
32001 cagcccccac atcgactggt ccagcgcgac agtccgactc ctaaccgagc
32051 ccatccaatg gcccaacacc gaccaccccc gcaccgcggc ggtgtcctca
32101 ttccggcatc gcggcaccaa cgcccacctc atcctccaac aacccccac
32151 ccccgacacc acacaaaccc ccaacaccac aacaggttct gatccgcag
32201 tgggttctga tcccgcatg ggtgtactgg tgtggccgtt gtcagcgcg
32251 tcagcgccgg ggttaagcgc acaagcgcc cgctctgtacc agcatctcag
32301 cgcccacccc gatctggatc cgatcgatgt agcccacagc ctggctacca
32351 cagcgagcca ccaccccac cgcgccacca tcaccaccag cattgagcac
32401 cacagcgaaa acaaccacga cacaaccgat gcgctggccg cactgcacgc
32451 cctggccaac aacggcacac acccctgct gagcagaggc ctgctgaccc
32501 cacagggccc cggcaaaaca gtgttcgtgt tcccggaca gggcagtaa
32551 taccocggca tgggcgcaga tctctaccgc caattccccg tgttcgcca
32601 cgccctcgac gcatgcgacg cagcgttaca gcctttcact ggatggtcg
32651 tgctagctgt gttacacgac gaaccgagg cccgctcgtt ggagcgagtc
32701 gatgtggtcc agcctgtgtt gttctcggtg atggtgtcgt tagccgact
32751 ctggcggttg gccggaatca ccccgatgc agtcacggc cactcccagg
32801 gcgagatcgc cgcgccacat gtggccggag ccctgacctt gccgaagca
32851 gctgcggtag tggctttgcg cagccgtgtc ttgaccgacc tggccggtgc
32901 cggtgccatg gcttcagtgc tatcgcccga ggaaccactg acccagctgc
32951 ttggcaggtg ggacggcaag atcactgtcg ccgcagttaa cggccccgct
33001 agcgtgtgtg tctccggcga taccacagcg atcaccgaat tgctgattac
33051 ctgcgaacac gaaaacatcg acgtctcgcg tatcccggtg gactaccctt
33101 ctcatcctcc ctatatggaa cacatccgcc atcagttcct cgacgagcta
33151 cccgagctga caccgcggcc atcaaccatc gcgatgtatt ccaccgtcga
33201 cggcgaaacct cagcacaccg cctacgacac caccacaatg acccgggact
33251 actggtaccg caacatccgt aacactgtcc ggttccatga cactgtcgt
33301 gccctgctcg gggcggtgga gcaggttttc ctggaacttt cacctcacc
33351 ggtgttgaca caagcgatca ccgacaccgt cgaacaagcc ggcggcgcg
33401 gcgcagcagt gccagctcta cgcaaggatc gccctgatgc tgtcgcggtc
33451 gctgcagcac tcggccagct gcactgccat ggcacagcc catcctggaa
33501 tgttctttac tgccaggccc gccccctcac actgcccacc tacgctttcc
33551 agcatcagcg ttactggctg ctgcccaccg ctgggtgattt cagcggggcc
33601 aatacccacg ccatgcatcc gctgctagac accgccaccg aactggccga
33651 aaaccgcgga tgggtgttca ccggccggat cagcccacgc acccaacct
33701 ggctaaacga acacgccgtc gaatcagccg tgctgttccc aggcaccgga
33751 ttcgctcagc tagcgctgca tgtcgctgac cgtgccggat attcctcggt
33801 caacgaactg atcgtgcaca ccccccgtct actcgtggc cagcacaccg
33851 cggatctaca gatcaccgtc accgacaccg atgacatggg ccggcagctc
33901 cttaacatcc actcgcgccc acatatcggc catgacaaca ccaccaccgg
33951 cgatgaacaa cccgagtggg tcctgcatgc cagcgcagtc ctgaccgcac
34001 aaaccaccga ccacaaccac ctcccctaa cgctgtgtcc gtggcctcca
34051 cccggcacag ccgcgatcga ggtggatgac ttctacgacg acctgggtgc

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FIGURE 8(continued)

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34101 acaggggtac aactacggcc cgacattcca aggtgtgcaa cggatatggc
34151 gtgaccacgc cacacccgat gtcattctacg ccgaagttga actaccgaa
34201 gacaccgaca tcgacggcta cggcatccac cccgccctat tcgacgcgc
34251 tttacacccc ctactcgccc tgacccaacc cccaccaac gacacogatg
34301 acaccaaacac cgcagacacc ggtgaccagg tgcggctgcc ctacgccttt
34351 accggcatca gtttgacgc caccacgcc acccgattac gggtagggct
34401 gaccgcgtacc ggcgcgatg ccattaccgt gcacaccagt gacaccaccg
34451 gagccccggg ggcgatcatc gactcattga tcaccgccc cctcaccacc
34501 gcoacagggt ctgctccggc aaccacagca gctggcctac tacacctgag
34551 ctggccacca caccctgaca ccacgaccga caccgacacc gacaccgatg
34601 cctgcgggta tcaggtgatc gccgaaccca ctcaacaact gcccgctac
34651 ctgcacgacc tacacaccag caccgacctg cacaccagca ccaccgaagc
34701 agacgtggtt gtgtggccgg tactcgggtgcc cagcaacgaa gagctccagg
34751 cacaccaagc atccgacacc gcggtgtctt ctcgataca caccctgacc
34801 cgccaaacac ttaccgtggt gcaggactgg ctactcacc ccgacaccac
34851 cggcaccgca ctggctcatc tgaccgcga cggcgctcagc accagtgcgc
34901 acgaccgggt ccccgacctc gccacgcgc cagtgtgggg cctgatccgc
34951 aggcccaaaa acgaacaccc cggacgcttc aactgtctcg acaccgacga
35001 caacaccaac agcgacaccc tcaccaccgc cctaaccctg ccaaccgcgc
35051 aaaaccaact ggccatacgc cgcgacacca tccacatccc ccgcctgacc
35101 cgacacagca gtgacgggtg gctcactgcg ccggtggtgg tagatcctga
35151 gggcacgggt ttgatcaccc gggggaccgg gacgctgggt gccttgctcg
35201 ccgagcatct ggtttctgcc catggtgtcc ggcattctgt gttgacctcg
35251 cggcgcggac ctcaggccca cggtgccacc gatctgcagc agcggctcac
35301 cgatctagggt gctcatgtca ccattacggc ctgcgatatc agcgaccccg
35351 aagcactggc cgccttggtc aattcagtgc ccacacaaca ccgtttaacc
35401 gcggtagtgc acacgcgcgc ggtattggcc gacaccccg tcaccgagtt
35451 gaccggcgat caactcgacc aggtgtctgc ccccaaatc gacgcggcat
35501 ggcagctgca ccaactcacc taogaacaca acctgtctgc attcatcatg
35551 ttctcgtcca tggccggaat gataggcagt cccggtcagg gtaactacgc
35601 ggcagccaac accgcgttag atgctctcgc cgactaccgc caccgcctgg
35651 gcttgccgcg gaccagcctg gcctggggct actggcagac tcacaccggt
35701 ctacccgcgc atctaaccga tgtagatcta gcccgcatga cccgcctggg
35751 tttgatgccc atcgccacca gccacggact ggccctgttc gatgccgccc
35801 tcgccaccgg acagcccggt tcgatacccg ccccgatcaa caccacacc
35851 ctggcccgac acgcccgcga caacaccctg gcccgatcc tgtctgcgt
35901 gatcaccaca ccacggcgcc gggcggcctc tgcgcgaacc gatctcgtg
35951 cccgcctcaa cggacttagc cccaacagc aacaacaaac actggccacc
36001 ctgctggccg cggccaccgc caccgtgctg gccaccaca ccccgaaag
36051 catcagccca gccaccgcgt tcaaagacct cggaatcgat tcgctgaccg
36101 cccttgaact gcgcaacacc ctacccaca acaccggcct ggatctgccc
36151 cccacctca tcttcgatca cccacacccc catgcggtgg ccgagcatct
36201 gcttgaacag atccctggca tcggtgccct ggtgcgggt ccggtggtga
36251 tcgcagctgg tcgtaccgag gagccggtgg cgggtggtgg gatggcgtgt
36301 cgtttccccc gtggtgtcgc atcagcggat cagttgtggg acttgggtgat
36351 cgctggccgt gatgtggtgg gtaattttcc gcccgatcgg ggttgggatg
36401 tggagggact gtttgatccc gatccgga cggtcggcaa aacctacacc
36451 cgttacggcg cgttccttga cgatgcggca ggttttgatg ccgggttctt
36501 tgggatctct ccacgggagg cagcgcgat ggacccccag cagcggctgc
36551 tgctggagggt gtgctgggaa gcgctagaaa ccgcgggtat tcccgcgac
36601 accttggccg gcacctccac cggggtatcc gccggagcct gggccagtc
36651 ctacggcgcc accaactccg atgacgctga ggggtatgcg atgaccggcg
36701 gcgcgactag cgtcatgtcc ggccgtatcg cctacacctt gggcctagaa
36751 ggtccagcga tcaccgttga caccgcctgc tcgtcatcgc tgggtggaat
36801 tcacctggcc tgccaatcct tacgaacaa cgaatcccag ctagcactgg

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FIGURE 8(continued)

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36851 cggcgcggt caccgtgatg agcacacctg cggttttcac cgagttctcc
36901 cgccaacgcg gcctggcccc agatggacgc tgcaaagcct tcgccgtac
36951 cgccgatggc accggctttg gtgaaggcgc cgcggtcttg gtccttgaac
37001 ggctctccga ggcccgccgc aacaaccacc cggtccttgc gatcgtcgct
37051 ggatcgcgga tcaaccaaga cggcgcatcc aacggaactga ccgcacccca
37101 cggcccggtca caacaacgcg tcatcaacca agcactagcc aacgccggcc
37151 tcaccacaga ccaggtcgac gccgtcgaag cccacggcac cggcaccaca
37201 ctgggtgacc ccatcgaagc cagcgcccta cagccacct acggccacca
37251 ccacacgccc gatcaaccgc tttggtggg atccatcaaa tccaacatcg
37301 gccacaccca agccgcgcgc ggcgccgccc gtgtggtcaa gatgatccaa
37351 gccatcaccc acgccacctt gcccgccacc ttgcacgtcg accaaccag
37401 cccccacatc gactgggtcca gcggcacagt ccgactccta accgagccca
37451 tccaatggcc caacaccgac ccccccgca ccgcgcggt gtcctcattc
37501 ggcatcagcg gcaccaacgc ccacctcatt ctccaacaac cccccacccc
37551 cgacaccaca caaaccccca acaccacaac aggtttctgat cccgcagtgg
37601 gttctgatcc cgcagtgggt gtactgggtg ggccgttgtc agcgcggtca
37651 gcgccggggg taagcgcaac agcgcccggt ctgtaccagc atctcagcgc
37701 ccacccgat ctggatccga tcgatgtagc ccacagcctg gctaccacac
37751 gcagccacca cccccaccgc gccaccatca ccaccagcat tgagcaccac
37801 agcgaaaaca accacgacac aaccgatgcg ctggccgcac tgcacgcctt
37851 ggccaacaac ggcaacaccc cctgctgag cagaggcctg ctgacccac
37901 agggcccgga caaacacagt ttctgtgtcc ccggacaggg cagtcaatac
37951 cccggcatgg gcgcagatct ctaccgcaa ttccccgtgt tcgcccacgc
38001 cctcgacgag gtctgtcgcg cgctgaaccc gcactctgat gttgctgtgc
38051 ttgaggtgat gttcagccaa caagacactg ccatggcgca actgctggac
38101 cagaccttct atgcacaacc ggctgtgttc gcgctgggaa ccgctctaca
38151 tcgattgttc acccagcccg gtatccaccc ggactacctg ctaggccact
38201 ccacgggaga actcacgcgc gcatacgccg ccggtgtgct gtcactgcaa
38251 gacgcagcca ccttggtcac aagccgagga cgactgatgc aatcctgcac
38301 gcccgcgggg acgatgctcg cactacaagc cagcgaagca gaagtacaac
38351 cgctgcttga aggcctagac cagccgtgt ccatcgccgc gatcaacgga
38401 gcaacgtcga tcgtactgtc aggagatcac gacagcctcg aacaaatcgg
38451 cgagcacttc attacccaag atcgacgtac caccgcactg caggtcagtc
38501 acgctttcca ctctccacat atggacccca tcctogaaca attccgccag
38551 atcgcgcccc aactcacctt cagcgcaacc accctgcccc tcttgtccaa
38601 cctcacccgg cagatcgccc gccacgacca actcgcccta cctgactatt
38651 ggaccaaca gctacgtaac actgtccggt tccatgacac tgtcgtgcc
38701 ctgctcgggg cgggtgagca ggttttctg gaactttcac ctaccccggt
38751 gttgacacaa gcgatcaccg acaccgtcga acaagccggc ggccggcgcg
38801 cagcagtgcc agctctacgc aaggatcgcc ctgatgctgt cgcgttcgct
38851 gcagcactcg gccagctgca ctgccatggc atcagcccat cctggaatgt
38901 tctttactgc caggcccgcc cctcacact gccaccta cgtttccagc
38951 atcagcgtaa ctggtgctg cccaccgctg gtgatttcag cggggccaat
39001 acccagcca tgcatcgct gctagacacc gccaccgaac tggccgaaaa
39051 ccgcggtatg gtgttcaccg gccggatcag cccacgcacc caaccatggc
39101 taaacgaaca cgccgtcgaa tcagccgtgc tgttcccagg caccggattt
39151 gtcgagctag cgctgcatgt cgctgaccgt gccgatatt cctcggtcaa
39201 ccgaactgat gtgcacacc cctgctact cgctggccac gacaccggg
39251 atctacagat caccgtcacc gacaccgatg acatgggccc gcagtctctt
39301 aacatccact cgcgcccaca tatcgcccat gacaacacca ccaccggcga
39351 tgaacaaccc gagtgggtcc tgcattgccag cgcagtctg accgcacaaa
39401 ccaccgacca caaccacctc cccctaacgc ctgtgccgtg gcctccaccc
39451 ggcacagccg cgatcgaggt ggtgacttc tacgacgacc tgggtgcaca
39501 gggctacaac tacggccgga cattccaagg tgtgaacgg atatggcgtg
39551 accacgcacc acccgatgtc atctacgcg aagtgaact acccgaagac
39601 accgcatcg acggctacgc catccacccc gccctattcg acgcccgtt
39651 acacccctta ctgcacctga cccaaccccc caccacgcac accgatgaca

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FIGURE 8(continued)

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39701 ccaacaccgc agacaccggg gaccagggtgc ggctgcccta cgcctttacc
39751 ggcatacagtt tgcacgccac ccacgccacc cgattacggg tacggctgac
39801 ccgtaccggc gccgatgcc taccgtgca caccagtac accaccggag
39851 ccccggtggc gatcatcgac tcattgatca cccgccccct caccaccgcc
39901 acagggtctg ctccggcaac cacagcagct ggctactac acctgagctg
39951 gccaccacac cctgacacca cgaccgacac cgacaccgac accgatgccc
40001 tgcggtatca ggtgatcgcc gaaccactc aacaactgcc cggctacctg
40051 caccagctac acaccagcac cgacctgcac accagcacca cogaagcaga
40101 cgtgggttgtg tggccggtac cggtgcccag caacgaagag ctccaggcac
40151 accaagcatc cgacaccgcg gtgtcttctc ggatacacac cctgaccgcg
40201 caaacactta ccgtggtgca ggactggctc actaccccg acaccaccgg
40251 caccgactg gtcactgtga cccgccacgg cgtcagcacc agtgcccacg
40301 acccggtccc cgacctagcc cagcccgagc tgtggggcct gatccgcagc
40351 gcccaaaacg aacaccccg acgcttcaca ctgctcgaca ccgacgacaa
40401 caccaacagc gacaccctca ccaccgccct aacctgcca acccgcaaaa
40451 accaactggc catacgccgc gacaccatcc acatccccc cctgaccgga
40501 cacagcagtg acggtgcgct cactgcgcgc gtggtggtag atcctgaggg
40551 caggtgtgtg atcaccgggg ggaccgggac gctgggtgcc ttgttcgccg
40601 agcatctggt ttctgcccac ggtgtccggc atctgttgtt gacctcgcg
40651 cgccgacctc agggccacgg tgccaccgat ctgacgagc ggctcaccga
40701 tctaggtgct catgtcacca tcacggcctg cgatatcagc gacccgaag
40751 cactggccgc cctggtcaat tcagtgccca cacaacaccg tttaaccgcg
40801 gtagtgcaca ccgcgcgggt attggccgac accccggtca ccgagttgac
40851 cggcgatcaa ctgcaccagg tctggcccc caaaatcgac gcggcatggc
40901 agctgcacca actcacctac gaacacaacc tgtctgcatt catcatgttc
40951 tcgtocatgg ccggaatgat aggcagtccc ggtcagggta actacgggc
41001 agccaacacc gcgttagatg ctctcgccga ctaccgccac cgcctgggct
41051 tgcccgcgac cagcctggcc tggggctact ggcagactca caccggtctc
41101 accgcgcac taaccgatgt agatctagcc cgcatgacct gctggggtt
41151 gatgccatc ccaaccagcc acggactggc cctgttctgat gccgccctg
41201 ccaccggaca gcccgtttgc ataccgccc cgatcaacac ccacaccctg
41251 gcccgacagc ccccgacaaa caccctggcc ccgatcctgt ctgcgctgat
41301 caccacacca cggcgccggg cggcctctgc cgcaaccgat ctcgctgccc
41351 gcctcaacgg acttagcccc caacagcaac aacaaact ggccaccctc
41401 gtggccgcg ccaccgccac cgtgctgggc caccacacc ccgaaagcat
41451 cagcccagcc accgcgttca aagacctcgg aatcgattcg ctgaccgccc
41501 ttgaactgcg caacacccctc acccaacaac ccggcctgga tctgcccccc
41551 accctcatct tcgatcacc cacccccac gcgctaacc aacacctgca
41601 caccgactc acccaaagcc ataccgggt cggaccaatt gcgtccctgc
41651 taagccacgc gatcgatgag gcaaatcc gtgccggcgc tgacctattg
41701 atggccgcat ccaatttgaa ccaagtttc agcaatatgg ctgaactcaa
41751 ccagctccc ggcgtgacgg acatagctga cgcgtctcct gatgggctac
41801 tcacctgat ctgcatctct acctcagaga atgagtacgc tcgcctogct
41851 gctgcgaaca ttcatctact gaccttgcgt gaaattgcgg cgcgggctt
41901 ttacgacgcg cagctgcaa attcgataga gacgtcgga gaggcgctgg
41951 caactgcat cacaggcgcc tacgcaata cgtccattgt tctggtagcg
42001 cactccattg tctgcgagct agctcaggca acgatgacac gtctacaaga
42051 cgctgacatc gatcttgtgg gtctggttct gttgatcca ctogaaggga
42101 ctaacagcac tgaagattat gtggagacag tcttgactcg aatcgagcat
42151 atcaatgcac cgagggtcgg agtagacgt tacttgccg ccctggggcg
42201 ctatctccaa ttccacgaag accgccgaat accaataccg gaaacggggc
42251 acatgacact gactcggac acgaaaattg accgtgcca aacaccaatg
42301 aacttattac aagatgaggc agcgttgacc gccctcaaaa taggaaactg
42351 gatgaacgac gtgggtgttg ccctctctgt caaccttgag tga

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FIGURE 8(continued)

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## Mup045 gene

```

1   gtgatttgga atgacatcta cataagtgga acggggcggt tcatcccgtc
51  aatgcgacca attaatgata tccaggtcga cgggtgtccg aatgatcata
101 ctatcgtgca atccgattac atttccttca ccgaagccga tgagccggct
151 acagtcgatg ccacgcgcgc tgcaaccgaa gcgctgacca cttccgagct
201 agtatccgct gatgttggcg tcttgatata tgccgcgac atcggcgatg
251 cgcatcattt tgccccgta tgtcacgtcc aaagagtcc cggggcgccc
301 gatgcgctgg cattcgaact ttccgcagca agtaacgggt gaacacaagg
351 catcgcagtt gctgcaaata tcatgacagc tgacgcgtcc gtgaaagctg
401 cactcgtttg tacagcttac cggcaccgca tcgatattat cagccgttgg
451 tcgtcaggta tggattccgg cgatggagca gccgccgcg tgctttcaag
501 agacggcgga atggtgcgat tgatttccgg gtatcacggc tactgcggg
551 agctagaggt tcttgctaga aatcgatcca acgaacgact tggctttgtg
601 ctgccagacg tcgggttagg aaaataccta actgctatag cgcggatgta
651 ccaagcggta attgcgcaag tactagaaga ggcacaaact agtattgccg
701 agatcgacta tttcggcctg atcggtatag gaattccaag tctcacagcg
751 actatcctag aacccaacgg tattccagtt aataaaacat cctggggttt
801 gctaagacaa atgggccacg ttggagcttg cgatccctg ctgagcctta
851 accacctatt cgagcagaat gtctcaagc gcggcgacaa agtctactc
901 ctagggtggc ggggtgggta tcgattgaca tgcattgtgg ctgaaatcgc
951 catgaatccc ggctgcccg gacactccac ttcgtag

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FIGURE 9

## Mup053 gene

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1   gtgaggcaga gattgaactg gattgcggcg caccgggttg tccgcggcac
51  cgcgcgggta gcggcccggc tgggcgacgt gcagtcggcg ctggtggcag
101 atcccatggg tatggcaaac ccggcgccat tttgcgatga attgagggca
151 atcggccctg tgggtgcgag ctacggcacc cacctcgtcg ttagtcatgc
201 catcgcccat gaactgcttc ggtccgaaga cttogaagtg gtctcgctcg
251 gatcgaactt gccggcacca atgcgctggc tagagcgccg cactcgggac
301 gatacgcccc atctgctgct gccgcgctcg ttgctggccg ttgagccgcc
351 gaatcacacg cgctatcgca aggcagtgct ctgggtgttc acgccgaaag
401 cagtagccgg attacgcgat catgtcgaag agactgcgtc ggcgctgttg
451 gatcagctca ccgaccaggc tagtgccgtc gacatcatag cccgctactg
501 ctcccagctg ccggtcgcgg tcatttgtga catcttaggc gtgcccagtc
551 gagaccgaaa ccgtgttctc aagttcggtc agctggcggg gccctgcttg
601 gattttgggc tcacatggcg tcagcaccag cagggtgcggc aagggtcca
651 aggactccac ttctggatca ccgagcacct cgaggaattg cggctaaacc
701 ccggtgacga tctgatgagt caaatgatcc acgcaagtga aaatggctcc
751 tcggaaacac acctccacgc aaccgaagtg cggatgatcg ggctgggtt
801 gggcgccagt ttcgcaacaa cgatggacct gttaggcaac gggattcagg
851 tgttggttga cgcgccgaa ctgcgggacg cgttgagtca gcgccgcaa
901 ctttggccca acgcggtaga agagatcctg cggttggagc caccggttca
951 gctcgcggga cgaatggctc gcaaggacac cgaggtggcg ggtaccgcaa
1001 tcaagcgggg ccagctggtg gcgatctatc tgggggcggg caaccgtgat
1051 ccgtccgtgt tcgccgatcc gcaccgctt gacatcacac gagccaacgc
1101 caaccggcat ctgcattct cgggtggccg ccacttctgc ctgggtgccg
1151 cccttgcccg cgtcgaaggc gaagtccgat tgagaatgct cttcgagcgc
1201 ttccctgacg tgcgcgccgc aggcccgga aatagacgtg atactogaac
1251 tctgcggggt tggtcgcagc tgccggtcca gttgggcgca gcacgatcga
1301 tggtatccg atga

```

FIGURE 10

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## Mup038 gene

```
1  atgattgttt ggcccgaagt ggtcagcaca gtggtcgacg tcgatggcgt
51  ggcgatgtcg gcactagtcg ccgaaccgga tcaggagcct aaggccgtga
101 tcttagccct gcatggcggt gccaccaacg cgcggtatth cga.ctgccct
151 ggccaccgcg cgctttccct gctgcacacc ggcgcgcgcg cgggattcac
201 cgttgtggcc cttgaccggc ccggctacgg cagctcgcgg ggt.gatccc
251 acgcgatgaa ccggccccac cagcgggccc cgctggccta tggggcgctg
301 gatcgcatcc tggcgacgcy gccacgcggg gccggggtgt tcataatggg
351 ccattcaaac ggatgcgaac tggcgatgtg gatggccacc gagacgcgcy
401 gtgccgagct gtcggcatc gagttggctg gtaccgctg gcattatcag
451 cccgaggccc gagaaatcct gacaacggcc actggtgaac atcgggtgggt
501 gggcctctat gatttgctct ggcacgcgca gcggctatac ccgcccagg
551 tcctcaacgc ggccatcatt tcttcgtccg ccccgcccta cgaggagcag
601 atgatggcgy actggaccgy ccgaaccttc ctggagctag tccctgctgt
651 gcgtgtgccy gtacatttca gcatcgcca acacgaaaag gtttggcagc
701 gcgatagtcc agcgctagat gaaatcgccg tcctgttctc tggcgcgccg
751 cggttcatcc tgcataaaca acccgaggcc ggacacaaca tcagcctggg
801 ccacaccgcc ggcgactacc acacgacagt cctgtcgttt gtccagcaat
851 gtctggccga acggttgccc aacgcgcaac aagatgtcga tctcgcgccc
901 gagtga
```

FIGURE 11

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## MlsA1 protein

VIFGDAHQNCRGGRVLGDAVAVVGMSCRVPGASDPDALWALLRDGI SVVDEIPSARWNLD  
 GLVAHRLTDEQRSALRHGAFLDDVEGFDAFFGINPSEAGSMQPQRLMLELTWAALEDA  
 RIVPEHLSSGSSSGVFTGAMSDDYTTAVTYRAAMTAHTFAGTHRSLIANRVSYTLGLRGPS  
 LVIDTGQSSSLVAVHVAMESLRREETSLAIAGGIHLNLSLAAALSAAHFGALSPDGRCYT  
 FDARANGYVRGEGGGVVVLKRLNDALADGNHIYCVIRGSSVNNDGATQDLTAPGVVGGQRQ  
 ALLQAYERAEIDPSEVQYVELHGTGTRLGDPTEAHSLSVFGTSTVPRSPLLVGSIKTNI  
 GHLEGAAGILGLIKTALAVHHRQLPPSLNYTVPNPKIPLEQLGLRVQTTLSEWPDLDKPL  
 TAGVSSFSMGGTNAHLILQQPPTPDTTQTPNPTTGSDDPAVGSDPAVGVLVWPLSARSAPG  
 LSAQAARLYQHLSAHPDLDPIDVAHSLATTRSHHPHRATITTSIEHHSENNHDTTDALAA  
 LHALANNGTHPLLSRGLLTPOGPGKTVFVFPQGSGQYPGMGADLYRQFPVFAHALDEVAA  
 ALNPHLDVALLEVMSQQDTAMAQLLDQTFYAQPALFALGTALHRLFTHAGIHPDYLLGH  
 SIGELTAAYAAGVLSLQDAATLVTSRGRIMQSCTPGGTMLALQASEAEVQPLLEGLDHAV  
 SIAAINGATSIVLSGDHDSLEQIGEHFITQDRRTTRLQVSHAFHSPHMDPILEQFRQIAA  
 QLTFSAPTLPILSNLTGQIARHDQLASPDYWTQQLRNTVRFHDTVAALLGAGEQVFEELS  
 PHPVLTQAITDITVEQAGGGGAAPALRKDRPDVAFAAALGQLHCHGISPSWNVLYCQAR  
 PLTLPTYAFQHQRYWLLPTAGDFSGANTHAMHPLLDTATELAENRGWVFTGRISPRTQPW  
 LNEHAVESAVLFPNTGFVELALHVADRAGYSSVNELIVHTPLLLAGHDTADLQITVTDTD  
 DMGRQSLNIHSHPHIGHDNTTTGDEQPEWVLHASAVLTAQTTDHNHLLPLTPVPWPPPGTA  
 AIEVDDFYDDLAAQGYNYGPTFQGVQRIWRDHATPDVIYAEVELPEDTDIDGYGIHPALF  
 DAALHPLLALTQPPNTDDTNTADTGQVRLPYAFTGISLHATHATRLRVRLTRTGADA  
 ITVHTSDTTGAPVAIIDSLITRPLTTATGSAPATTAAGLLHLSWPPHPDTTTTDTD  
 LRYQVIAEPTQQLPRYLHDLHTSTDHSTTEADVVPVPSNEELQAHQASDTAVSS  
 RIHTLTRQTLTVVQDWLTHPDTTGTRLVIVTRHGVSTSAHDPVPDLAHAAVWGLIRSAQN  
 EHPGRTLLDDTNTNSDTLTALTLPTRNQLAIRRTIHIPRLTRHSSDGALTAPVVV  
 DPEGTVLITGGTGTLGALFAEHLVSAHGVRHLLTSRRGPQAHGATDLQQRLLDLAGHVT  
 ITACDISPEALAAALVNSVPTQHRLTAVVHTAAVLADTPVTELTGDLQDLQVLAPKIDAAW  
 QLHQLTYEHNLSAFIMFSSMAGMIGSPGQGNAAAANTALDALADYRHRGLPATSLAWGY  
 WQHTGTGLTAHLTDVDLARMTRLGLMPIATSHGLALFDAALATGQPVSIAPINTHTLARH  
 ARDNTLAPILSALITTPRRRAASAATDLAARLNGLSPOQQOQTLATLVAAATATVLGHHT  
 PESISPATAFKDLGIDSLTALELRNTLTHNTGLNLSSTLIFDHPTPHAVAEHLLEQIPGI  
 GALVPAPVVAAGRTEEPVAVVGMACRFPGGVASADQLWDLVIAGRVDVGNFPADRGWDV  
 EGLFDPDPDAVGKTYTRYGAFLDDAAGFDAGFFGISPREARAMDPQQRLLLEVCWEALET  
 AGIPAHTLAGTSTGVFVGAWAQSYGATNSDDAEGYAMTGGATSVMSGRIAYTLGLEGPPI  
 TVDTACSSSLVAIHLACQSLRNNEQLALAGGVTVMSTPAVFTDFSRQRLAPDGRCRAF  
 AATADGTGWEGGAVALVLERLSEARRNNHPVLAIVAGSAINQDGASNGLTAPHGSPQORV  
 INQALANAGLTHDQVDAVEAHGTGTTLGDPLEAGALHATYGHHTPDQPLWLGSIKSNIG  
 HTQAAAGAAGVVKMIQAI THATLPATLHVDQPSPHIDWSSGTVRLLTEPIQWPNTDHPRT  
 AAVSSFGISGTNAHLILQQPPTPDTTQTPNPTTGSDDPAVGSDSAVGSDPAVGVLVWPLSA  
 RSAPGLSAQAARLYQHLSAHPDLDPIDVAHSLATTRSHHPHRATITTSIEHHSENNHDTT  
 DALAALHALANNGTHPLLSRGLLTPOGPGKTVFVFPQGSGQYPGMGADLYRQFPVFAHAL  
 DEVAAALNPHLDVALLEVMSQQDTAMAQLLDQTFYAQPALFALGTALHRLFTHAGIHPD  
 YLLGHSIGELTAAYAAGVLSLQDAATLVTSRGRIMQSCTPGGTMLALQASEAEVQPLLEG  
 LDHAVSIAAINGATSIVLSGDHDSLEQIGEHFITQDRRTTRLQVSHAFHSPHMDPILEQF  
 RQIAAQLTFSAPTLPILSNLTGQIARHDQLASPDYWTQQLRNTVRFHDTVAALLGAGEQV  
 FEELSPHPVLTQAITDITVEQAGGGGAAPALRKDRPDVAFAAALGQLHCHGISPSWNV  
 YCQARPLTLPTYAFQHQRYWLLPTAGDFSGANTHAMHPLLDTATELAENRGWVFTGRISP  
 RTQPLWNEHAVESAVLFPNTGFVELALHVADRAGYSSVNELIVHTPLLLAGHDTADLQIT  
 VTDTDMDGRQSLNIHSHPHIGHDNTTTGDEQPEWVLHASAVLTAQTTDHNHLLPLTPVPWP  
 PPGTAAIEVDDFYDDLAAQGYNYGPTFQGVQRIWRDHATPDVIYAEVELPEDTDIDGYGI  
 HPALFDAALHPLLALTQPPNTDDTNTADTGQVRLPYAFTGISLHATHATRLRVRLTR  
 TGADAITVHTSDTTGAPVAIIDSLITRPLTTATGSAPATTAAGLLHLSWPPHPDTTTTD  
 TDTDALRYQVIAEPTQQLPRYLHDLHTSTDHSTTEADVVPVPSNEELQAHQASD  
 TAVSSRIHTLTRQTLTVVQDWLTHPDTTGTRLVIVTRHGVSTSAHDPVPDLAHAAVWGLI  
 RSAQNEHPGRTLLDDTNTNSDTLTALTLPTRNQLAIRRTIHIPRLTRHSSDGALT  
 APVVVDPEGTVLITGGTGTLGALFAEHLVSAHGVRHLLTSRRGPQAHGATDLQQRLLD

FIGURE 12



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GAHVITITACDISDPEALAALVNSVPTQHRLTAVVHTAAVLADTPVTELTGDQLDQVLAPK  
IDAQWLHQLTYEHNLSAFIMFSSMAGMIGSPGQGNAAANTALDALADYRHRGLPATS  
LAWGYWQHTGLTAHLTDVDLARMTRLGLMPIATSHGLALFDAALATGQPVSI PAPINTH  
TLARHARDNTLAPILSALITTPRRRAASAATDLAARLNGLSPOQQQQTALTLVAAATATV  
LGHTPESISPATAFKDLGIDSLTALELRNTLTHNTGLNLSSTLIFDHPTPHAVAEHLLE  
QIPGIGALVPAPVIAAGRTEEPVAVVGMACRFPGGVASADQLWDLVIAGRDVVGNFPAD  
RGWDVEGLFDPDPDAVGKTYTRYGAFLDDAAGFDAGFFGISPREARAMDPQQRLLLEVCW  
EALETAGIPAHTLAGTSTGVFVGAGAQSYGATNSDDAEGYAMTGGATSVMSGRIAYTLGL  
EGPAITVDTACSSSLVAIHLACQSLRNESQLALAGGVTVMSTPAIFTEFSRQRLAPDG  
RCKAFAATADGTGWGEGAAVLVLERLSEARRNNHPVLAIVAGSAINQDGASNGLTAPHGP  
SQQRVINQALANAGLTHDQVDAVEAHGTGTTLGDPTEAGALHATYGHHTPDQPLWLGS  
KSNIGHTQAAAGAAGVVKMIQAITHATLPAHLHVDQPSPHIDWSSGTVRLLTEPIQWPNT  
DHPRTAAVSSFGISGNAHLILQPPPTDPTTQTPNPTTGSDDPAVGSDDPAVGSLV  
WPLSARSAPGLSAQAARLYQHLSAHPDLDPIDVAHSLATTRSHHPHRTATITTSIEHSEN  
NHDTTDALAALHALANNGTHPLLSRGLLTPQGPVKTVFVFPQGSQYPMGADLYRQFPV  
FAHALDACDAALQPF TGWSVLAVLHDEPEAPSLERVDVQPVLFVMSVLAALWRWAGIT  
PDAVIGHSQGEIAAAHVAGALTPEAAAVVALRSRVLTDLAGAGAMASVLSPEEPLTQLL  
ARWDGKITVAAVNGPASAVVSGDTTAITELLITCEHENIDARAI PVDYPSHSPYMEHIRH  
QFLDELPELTPRPSTIAMYSTVDGEPHDTAYDTTMTADYWYRNIRNTVRFHDTVAALLG  
AGEQFLELSPHVLTPQAITDTEQAGGGGAAPALRKDRPDVAFAAALGQLHCHGISP  
SWNVLYCQARPLTLPTAFQHQRYWLLPTAGDFSGANTHAMHPLLDTELAENRGWVFT  
GRISPRTPQWLNEHAVESAVLFPGTGFVELALHVAADRAGYSSVNELIVHTPLLAGHDTA  
DLQITVTDTDMMGRQSLNIHSRPHIGHDNTTGTGEQPEWVLHASAVLTAQTTDHNHLPLT  
PVPWPPPGTAAIEVDDFYDDLAAGQYNYGPTFQGVQRIWRDHATPDVIAEVELPEDTDI  
DGYGIHPALFDAALHPLALTQPPNTDNTADTGDQVRLPYAFTGISLHATHATRLR  
VRLTRTGADAITVHTSDTTGAPVAIIDSLITRPLTTATGSAPATTAAGLLHLSWPPHPDT  
TTDDTDDALRYQVIAEPTQQLPRYLHDLHTSTDLHTSTTEADVVVWVPPVPSNEELQA  
HQASDTAVSSRIHTLRTQTLTVQDQLWTHPDTTGTRLVIVTRHGVSTSAHDPVPDLAHAA  
VWGLIRSAQNEHPGRFTLLDNTNSDTLTALTLPTRNQLAIRDTIHIPRLTRTAV  
LTPPDGSGPWRDLTTGKGDLANLALLPTAHTALASGQIRIDVRAAGLNFHDVVVALGLIPD  
DGFGGEAAGVISEIGPDVYGFVAGDAVTGMTVSGAFAPSTVADHRMVTIPARWSFPQAA  
SIPVVFLLTAYIALAEISGLSRGQRLVLIHAGTGGVGMMAIQLAHLGAEVFATASA AKWST  
LEALGVPDRDHIASSRDLDFSNFLDATNGAGVDVVLNCLSGEFVEASLALLPRGGHFVEI  
GKTDIRDTEVIAATHPGVIYRALDLSVSPDHIQRTLAQLSPLFATDTLKPLPTTNYSIY  
QAISALRDSQARHTGKIVLTAPVVVDPEGTVLITGGTGLGALFAEHLVSAHGVRHLLL  
TSRRGPQAHGATDLQQLTDLGAHVITITACDISDPEALAALVNSVPTQHRLTAVVHTAVV  
LADTPVTELTGDQLDQVLAPKIDAQWLHQLTYEHNLSAFIMFSSMAGMIGSPGLGNAA  
ANTALDALADYRHRGLPATS LAWGYWQHTGLTAHLTDVDLARMTRLGLMPIATSHGLA  
LFDAAALATGQPVSI PAPINTHTLARHARDNTLAPILSALITTPRRRAASAATDLAARLNG  
LSPQQQQTALTLVAAATATVLGHHTPESISPATAFKDLGIDSLTALELRNTLTHNTGLN  
LSSTLIFDHPTPHAVAEHLLEQIPGIGALVPAPVIAAGRTEEPVAVVGMACRFPGGVAS  
ADQLWDLVIAGRDVVGNFPADRGWDVEGLFDPDPDAVGKTYTRYGAFLDDAAGFDAGFFG  
ISPREARAMDPQQRLLLEVCWEALETAGIPAHTLAGTSTGVFVGAGAQSYGATNSDGAEG  
YAMTGGAISVMSGRIAYTLGLEGPATVDTACSSSLVAIHLACQSLRNESQLALAGGVTV  
VMSTPAIFTEFSRQRLAPDGRCKAFAATADGTGFGEGAAVLVLERLSEARRNNHPVLAIV  
VAGSAINQDGASNGLTAPHGPSQQRVINQALANAGLTHDQVDAVEAHGTGTTLGDPTEAS  
ALHATYGHHTPDQPLWLGSIKSNIGHTQAAAGAAGVVKMIQAITHATLPAHLHVDQPS  
HIDWSSGTVRLLTEPIQWPNTDHPRTAAVSSFGISGNAHLILQPPPTDPTTQTPNPTTG  
SDPAVGSDSAVGSDPAVGSLVWPLSARSAPGLSAQAARLYQHLSAHPDLDPIDVAHSLAT  
TRSHHPHRTATITTSIEHSENNDTTDALAALHALANNGTHPLLSRGLLTPQGPVKTVFV  
FPGQGSQYPMGADLYRQFPVFAHALDACDAALQPF TGWSVLAVLHDEPEAPSLERVDV  
QPVLFVMSVLAALWRWAGITPDAVIGHSQGEIAAAHVAGALTPEAAAVVALRSRVLTDL  
LAGAGAMASVLSPEEPLTQLLARWDGKITVAAVNGPASAVVSGDTTAITELLITCEHENI  
DARAI PVDYPSHSPYMEHIRHQFLDELPELTPRPSTIAMYSTVDGEPHDTAYDTTMTAD  
YWYRNIRNTVRFHDTVAALLGAGEQVLELSPHVLTPQAITDTEQAGGGGAAPALRKD  
RPDAVAFAAALGQLHCHGISPSWNVLYCQARPLTLPTAFQHQRYWLLPTAGDFSGANTH

FIGURE 12(continued)

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AMHPLLDTATELAENRGWVFTGRISPRTPQWLNEHAVESAVLFPGTGFVELALHVA DRAG  
 YSSVNELIVHTPLLLAGHDTADLQITVTD TDDMGRQSLNIHSRPHIGHDNTTTGDEQPEW  
 VLHASAVLTAQTDDHNLPLTPVPWPPPGTAAIEVDDFYDDLAAQGYNYGPTFQGVQRIW  
 RDHATPDVIAEVELPEDTDIDGYGIHPALFDAALHPLLALTQPPTNDTDDTNTADTG DQ  
 VRLPYAFTGISLHATHATRLRVR LTRTGADAITVHTSDTTGAPVAIIDSLITRPLTTATG  
 SAPATTAAGLLHLSWPPHPD TTTDDTD TDDALRYRVIAEPTQQLPRYLHDLHTSTDLHTS  
 TTEADV VVPVPVPSNEELQAHQASDTAVSSRIHTLTRQTLTVVQDWLTHPDTTGT RLVI  
 VTRHGVSTSAHDPVPDLAHA AVWGLIRSAQNEHPGRFTLLD TDDNTNSDTLTALTLPTR  
 ENQLAIRRDTIHIPRLTRHSSDGALTAPVVVDPEGTVLITGGTGLGALFAEHLVSAHGV  
 RHLLLSRRGPQAHGATDLQORLTDLGAHVTTITACDISDPEALALVNSVPTQHRLTAVV  
 HTAAVLADTFVTELTGDQLDQVLAPKIDAAWQLHQLTYEHNLSAFIMFSSMAGMIGSPGQ  
 GNYAAANTALDALADYRHRLGLPATSLAWGYWQHTGLTAHLTDVDLARMTRLGLMPIAT  
 SHGLALFDAALATGQPVSI PAPINTHTLARHARDNTLAPILSALITTPRRRAASAA TDLA  
 ARLNGLSPQQQQT LATLVAAATATVLGHHTPESISPATAFKDLGIDSLTALELRNTLTH  
 NTGLDLPPTLIFDHPTALTQHLHTRLTGALVPAPVVIAGRTEEPVAVVGMACRFPG  
 GVASADQLWDLVIAGRDVVG NFPADRGWDVEGLFDPDPDAVGKTYTRYGAFLDDAAGFDA  
 GFFGISPREARAMDPQORLLLEVCWEALETAGIPANTLAGTSTG VFGAWAQSYGATNSD  
 DAEGYAMTGGAISVMSGRIAYTLGLEGPATVDTACSSSLVAIHLACQSLRNNESQLALA  
 GGVTVMSTPAVFTDFSRQRLAPDGRCKAFAATADGTGFGEGA AVLVLERLSEARRNNHP  
 VLAIVAGSAINQDGASNGLTAPHGPSQQRVINQALANAGLTHDQVDAVEAHGTGTTLGDP  
 IEAGALHATYGHHTPDQPLWLGSIKSNIGHTQAAAGAAGVVKMIQAI THATLPATLHVD  
 QPSPHIDWSSGTVRLLTEPIQWPNTDHPRTAAVSSFGISGTNAHLILQQPPTPDTTQTPN  
 TTTGSDPAVGS DPAVGVLWPLSARSAPGLSAQAARLYQHLSAHPDLDPIDVAHSLATTR  
 SHHPRATITTSIEHSENNDTTDALAALHALANNGTHPLLSRGLLTPOGPGKTVFVFP  
 GQGSQYPGMGADLYRQFPVFAHALDACDAALQFFTGW SVLAVLHDEPEAPSLERVDVVQP  
 VLFSVMVSLAALWRWAGITPDAVIGHSQGEIAAAHVAGALTLP EAAAVVALRSRVLTDLA  
 GAGAMASVLSPEEPLTQLLARWDGKITVA AVNGPASAVVSGDTTATITELLITCEHENIDA  
 RAIPVDYPSSHSPYMEHIRHQFLDELPELTPRPSTIAMYSTVDGEPHDTAYDTTMTADY W  
 YRNIRNTVRFHDTVAALLGAGEQVFLELSPHVLTAITDVEQAGGGGA AVPALRKDRP  
 DAVAFAAALGQLHCHGISPSWNVLYCQARPLTLPTAYAFQHRYWLLPTAGDFSGANTHAM  
 HPLLDTATELAENRGWVFTGRISPRTPQWLNEHAVESAVLFPGTGFVELALHVA DRAGYS  
 SVNELIVHTPLLLAGHDTADLQITVTD TDDMGRQSLNIHSRPHIGHDNTTTGDEQPEWVL  
 HASAVLTAQTDDHNLPLTPVPWPPPGTAAIEVDDFYDDLAAQGYNYGPTFQGVQRIWRD  
 HATPDVIAEVELPEDTDIDGYGIHPALFDAALHPLLALTQPPTNDTDDTNTADTG DQVR  
 LPYAFTGISLHATHATRLRVR LTRTGADAITVHTSDTTGAPVAIIDSLITRPLTTATGSA  
 PATTAGLLHLSWPPHPD TTTDDTD TDDALRYQVIAEPTQQLPRYLHDLHTSTDLHTSTT  
 EADV VVPVPVPSNEELQAHQASDTAVSSRIHTLTRQTLTVVQDWLTHPDTTGT RLVI  
 RHGVSTSAHDPVPDLAHA AVWGLIRSAQNEHPGRFTLLD TDDNTNSDTLTALTLPTR  
 QLAI RRDTHIPRLTRTAVLTPD SGPWRLDTTGKGD LANLALLPTAHTALASGQIRIDV  
 RAAGLNFDHVVVALGLIPDDGFGGEAAGVISEIGPDVYGFVGD AVTGMTVSGAFAPSTV  
 ADHRMVTIPARWSFPQAASIPVVF LTAYIALAEISGLSRGQRVLIHAGTGGVGMAAIQL  
 AHHLGA EVFATASAAKWSTLEALGVPRDHIASSRTLDFSNAFLDATNGAGVDVVLNCLSG  
 EFVEASLALLPRGGHFVEIGKTDIRDTEVIAATHPGVIYRALDLSVSPDHIQRTLAQLS  
 PLFATDTLKLPTTNYSIYQAI SALRDMSQARHTGKIVLTAPVVVDPEGTVLITGGTGL  
 GALFAEHLVSAHGV RHLLLSRRGPQAHGATDLQORLTDLGAHVTTITACDISDPEALAL  
 VNSVPTQHRLTAVVHTAAVLADTFVTELTGDQLDQVLAPKIDAAWQLHQLTYEHNLSAFI  
 MFSSMAGMIGSPGQGN YAAANTALDALADYRHRLGLPATSLAWGYWQHTGLTAHLTDVD  
 LARMTRLGLMPIATSHGLALFDAALATGQPVSI PAPINTHTLARHARDNTLAPILSALIT  
 TPRRAASAA TDLAARL NGLSPQQQQT LATLVAAATATVLGHHTPESISPATAFKDLGI  
 DSLTALELRNTLTHNTGLNLSSTLIFDHPTPHAVA EHLLEQIPGIGALVPAPVVIAGRT  
 EEPVAVVGMACRFPGGVASADQLWDLVIAGRDVVG NFPADRGWDVEGLFDPDPDAVGKTY  
 TRYGAFLDDAAGFDAGFFGISPREARAMDPQORLLLEVCWEALETAGIPANTLAGTSTGV  
 FVGAGAQSYGATNSDDAEGYAMTGGATSVMSGRIAYTLGLEGPATVDTACSSSLVAIHL  
 ACQSLRNNESQLALAGGVTVMSTPAVFTDFSRQRLAPDGRCKAFAATADGTGFGEGA AV  
 LVLERLSEARRNNHPVLAIVAGSAINQDGASNGLTAPHGPSQQRVINQALANAGLTHDQV  
 DAVEAHGTGTTLGDP IEAGALHATYGHHTPDQPLWLGSIKSNIGHTQAAAGAAGVVKMI  
 QAI THATLPATLHVDQPSPHIDWSSGTVRLLTEPIQWPNTDHPRTAAVSSFGISGTNAHL

FIGURE 12(continued)

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ILQQPPTPNPTQTPEDCSPAQSPCATITDAGTGLSFVPWVISAKSAEALSAQASRLLTRL  
DDDPVVDAILGWSLIATRSMFEHRAVVVGADRHQLQRGLAELASGNLGADVVGRRARAA  
GETVMVFPQGSSQRLGMGAQLYEQFPVFAAFDDVVDALDQYLRPLRQVMWGDDDEGLLN  
STFEAQPSLFAVEVALFALLRFWGVVPDYVIGHSVGELAAQVAGVLSLQDAKLVSARG  
RLMQALPAGGAMVAVAASQHEVEPLLVEGVDAALNAPGSVVISGDQAAVRLIANRLADR  
GYRAHELAVSHAFHSSLMPEMEEFARLASEIVVEQPQIPLISNVTGQLANADYGSAGYW  
VDHIRRPVRFADSVASLEAMGASCFIEVGPAAGLGAIEQSLKSAEPTVSVSALSTDKPE  
SVAVLRAARLSTSGIPVDWQSVFDGRSTQTVNLPTYAFQRQRFWLDANRIGQGDPAQSP  
QAQNVESRFWEAVEREDVDGLADSIGVTASAMQTVLPALSSWRAERTQSELDWRYQVT  
WLSSEPATPSSITLSGIWLLIVPSELAKTDPVIGCAALEAHGALVTIITIIFEPDFNRSLM  
GASLKDIGSHISGVISFLGIHGSEFSDSGAVKTLNLVQAMGDVHLDVPLWCLTQGAVSIS  
ADDLIRCSSAALVWGLGRVVALEHPGSWGGVLDPESPDDAAWERLCALLAQPTDEQFA  
IRPSGVFLRLRIHAPATTTSKSSTAWAPRGTVLITGGTGALGAHVARWLAKHYESVDLLL  
TSRRGMAADGATELVDDLRTAGASVTVHACDVTDRTSVEAAIACKSLDAVFHLAGRHOPT  
LLELEDESFSDELAPKVHGAQVLSDITSNLTLASFVMFSSVAGIWWGKSQGAYAAANAF  
LDSLAEKRRTLGLPATSVAWGLWAGGGMGRPSASGLNLIGLKSMSADLAVQALSADIDR  
PQATLTVASVNWDRFYPTFALARPRPFLHEITEVMAYRESMRSSSASTATLLTSKLAGLT  
ATEQRAVTRKVLVDQAAASVLGYASTESLDTHESFKDLGFDSLTALELRDHLQTATGLNLS  
STLIFDHPTPHAVEHLEQIPGIGALVPAPVVAIAGRTEEPVAVVGMACRFPGGVASAD  
QLWDLVIAGRDVGNFPADRGWDVEGLFDPDPDAVGKTYTRYGAFLDDAAGFDAGFFGIS  
PREARAMDPQQRLLLEVCWEALETAGIPAHTLAGTSTGVFAGAWAQSYGATNSDDAEGYA  
MTGGSTSVMSGRIAYTLGLEGPATVDTACSSSLVAIHLACQSLRNNEQLALAGGVTVM  
STPAIFTEFSRQGLAPDGRCKAFAATADGTGFGEAAVLVLERLSEARRNNHPVLAIVA  
GSAINQD GASNGLTAPHGPSQQRVINQALANAGLTHDQVDAVEAHGTGTTLGDPIEASAL  
HATYGHHTPDQPLWLGSIKSNIGHTQAAAGAAGVVKMIQAITHATLPATLHVDQPSPHI  
DWSSGTVRLLETEPIQWPNTDHPRTAAVSSFGISGTNAHLILQQPPTDTTQTPNTTTGSD  
PAVGSDPAVGVLVWPLSARSAPGLSAQAARLYQHLSAHPDLDPIDVAHSLATTRSHHPR  
ATITTSIEHSENNHDTTDLAALHALANNGTHPLLSRGLLTPOGPGKTVFVFPQGGSQY  
PGMGADLYRQFPVFAHALDACDAALQPFTGWSVLAVLHDEPEAPSLERVDDVQPVLFVSM  
VSLAALWRWAGITPDVAVIGHSGQGEIAAAHVAGALTPEAAAVVALRSRVLTDLAGAGAMA  
SVLSPEEPLTQLLARWDGKITVAAVNGPASAVVSGDTTATITELLITCEHENIDARAI PVD  
YPSHSPYMEHIRHQFLDELPELTTPRPSTIAMYSTVDGEPHDTAYDTTMTADYWYRNIRN  
TVRFHDTVAALLGAGEQVFELESPHPVLTQAITDVEQAGGGGAAPALRKDRPDAVAF  
AALGQLHCHGISPSWNVLYCQARPLTLPTYAFQHQRWLLPTAGDFSGANTHAMHPLLD  
ATELAENRGWVFTGRISPRTPQFWLNEHAVESAVLFPGTGFVELALHVADRAGYSSVNELI  
VHTPLLLAGHDTADLQITVTDTDMDGRQSLNIHSHPHIGHDNTTTGDEQPEWVLHASAVL  
TAQTTDHNHLPLTPVPWPPEGTAAIEVDDFYDDLAAQGYNYGPTFGQVQRIWRDHATPDV  
IYAEVELPEDTIDIGYGIHPALFDAALHPLLALTQPPNTDNTADTGDQVRLPYAFT  
GISLHATHATRLRVLRTGADAITVHTSDTTGAPVAIIDSLITRPLTTATGSAPATTAA  
GLLHLSWPPHPDTTTTDTDTDALRYQVIAEPTQQLPRYLHDLHTSTTEADVVPVFPVP  
SNEELQAHQASDTAVSSRIHTLTRQTLTVQDWLTHPDTTGTRLVIVTRHGVSTSAHDPV  
PDLAHA VVWGLIRSAQNEHPGRFTLLDNTDNTSDTLTALTPTRENQLAIRRDTIHIP  
RLTRHSSDGALTAPVVVDPEGTVLITGGTGLGALFAEHLVSAHGVRLHLLTSRRGPQAH  
GATDLQQRLLDLAGHVTITACDISDPEALAAALVNSVPTQHRLTAVVHTAAVLADTPVTEL  
TGDQLDQVLAPKIDA AWQLHQLTYEHNLSAFIMFSSMAGMIGSPGQGN YAAANTALDALA  
DYRHLRLGLPATSLAWGYWQHTGLTAHLTDVDLARMTRLGLMPIATSHGLALFDAALATG  
QPVSIPAPINTHTLARHARDNTLAPILSALITTPRRRAASAATDLAARLNGLSPQQQQQT  
LATLVAAATATVLGHHTPESISPATAFKDLGIDSLTALELRNTLTHTGLDLPPTLIFDH  
PTPHAVEHLEQIPGIGALVPAPVVAIAGRTEEPVAVVGMACRFPGGVASADQLWDLVI  
AGRDVVGNFADRGWDVEGLFDPDPDAVGKTYTRYGAFLDDAAGFDAGFFGISPREARAM  
DEQQRLLLEVCWEALETAGIPAHTLAGTSTGVFAGAWAQSYGATNSDDAEGYAMTGGSTS  
VMSGRIAYTLGLEGPATVDTACSSSLVAIHLACQSLRNNEQLALAGGVTVMSTPAVFT  
EFSRQRLAPDGRCKAFAATADGTGFGEAAVLVLERLSEARRNNHPVLAIVAGSAINQD  
GASNGLTAPHGPSQQRVINQALANAGLTHDQVDAVEAHGTGTTLGDPIEASALHATYGH  
HTPDQPLWLGSIKSNIGHTQAAAGAAGVVKMIQAITHATLPATLHVDQPSPHIDWSSGTV  
RLLETEPIQWPNTDHPRTAAVSSFGISGTNAHLILQQPPTDTTQTPNTTTGSDPAVGSDP  
AVGVLVWPLSARSAPGLSAQAARLYQHLSAHPDLDPIDVAHSLATTRSHHPRATITTSI

FIGURE 12(continued)

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EHHSENNHDTTDALAALHALANNGTHPLLSRGLLTPQGPVKTVFVFPQGSQYPGMGADL  
 YRQFPVFAHALDACDAALQPF TGWSVLAVLHDEPEAPSLERVDVVPVLFVSMVSLAALW  
 RWAGITPDAVIGHSQGEIAAAHVAGALTLPAAAVALRSRVLTDLGAGAMASVLSPEE  
 PLTQLLARWDGKITVAAVNGPASAVVSGDTTATELLITCEHENIDARAI PVDYPSHSPY  
 MEHIRHQFLDELPELTTPRSTIAMYSTVDGEPHDTAYDTTMTADYWYRNIRNTVRFHDT  
 VAALLGAGEQVFLELSPHPVLTQAITDVEQAGGGGAAPALRKDRPDVAFAAALGQLH  
 CHGISPSWNVLYCQARPLTLPTAFQHQRWLLPTAGDFSGANTHAMHPLDTELAEN  
 RGWVFTGRISERTQPWLNEHAVESAVLFPGTGFVELALHVADRAGYSSVNELIVHTPLLL  
 AGHDTADLQITVTD TDDMGRQSLNIHSRPHIGHDNTTTGDEQPEWVLHASAVLTAQTDDH  
 NHLPLTPVPWPPPGTAAIEVDDFYDDLAAQGYNYGPTFGQVQRIWRDHATPDVIAEVEL  
 PEDTDIDGYGIHPALFDAALHPLLALTQPPNTDDTNTADTGQVRLPYAFTGISLHAT  
 HATRLRVRLTRTGADAITVHTSDTTGAPVAIIDSLITRPLTTATGSAPATTAAGLLHLSW  
 PPHPDTTDTDDTDALRYQVIAEPTQQLPRYLHDLHTSTDLHTSTTEADV VVWPVPVPS  
 NEELQAHQASDTAVSSRIHTLRQTLTVQDWLTHPDTTGTRLVIVTRHGVSTSAHDPVP  
 DLAAHA VWGLIRSAQNEHPGRFTLLD TDDNTNSDTLTALTLP TRENQLAIRRDTIHIPR  
 LTRTA VLT PPD SG PWR LDTTGKGD LANLALLPTAHTALASGQIRIDVRAAGLNFDVVA  
 LGLIPDDGFGGEAAGVISEIGPDVYGFVGDVAVTGMTVSGAFAPSTVADHRMVM TIPARW  
 SFPQAASI PVVFLTAYIALAEISGLSRGQVLIHAGTGGVGMMAIQLAHLGAEVFATAS  
 AAKWSTLEALGVPRDHIASSRTLD FSNAFLDATNGAGVDVVLNCLSGEFVEASLALLPRG  
 GHFVEIGKTDIRDTEVIAATHPGVIYRALDLSVSPDHIQRTLAQLSPLFATDTLKLPT  
 TNSIYQAIASALRDMSQARHTGKIVLTAPVVVDPEGTVLITGGTGTLGALFAEHLVSAHG  
 VRHLLTSRRGPQAHGATDLQQLTDLGAHVITACDISDPEALAALVNSVPTQHRLTAV  
 VHTAAVLADTPVTELTGQDLQVLAPKIDAAWQLHQLTYEHNLSAFIMFSSMAGMIGSPG  
 QGNYAAANTALDALADYRHRGLPATSLAWGYWQTRTGTAHLTDVDLARMTRLGLMPIA  
 TSHGLALFDAALATGQPVSI PAPINTHTLARHARDNTLTPILSALITTPRRRAASAATDL  
 AARLNGLSPPQQQOTLATLVAAATATVLGHHTPESISPATAFKDLGIDSLTALELRNTLT  
 HNTGLDLPPTLIFDHPTPTALTQHLHTRLTGALVPAPVVAAGRTEEPVAVVGMACREFP  
 GGVASADQLWDLVIAGRDVVGNF PADRGWDVAGLFD PDPDAVGKTYTRYGAFLDDAAGFD  
 AGFFGISPREARAMPDQQRLLLEVCEALETAGIPAHTLAGTSTGVFVGAGAQS YGATNS  
 DDAEGYAMTGGAISVMGRIAYTLGLEGPATVDTACSSSLVAIHLACQSLRNNE SQLAL  
 AGGVTVMSTPAVFTDFSRQGLAPDGRCKAFAATADGTGFGEGA AVLVLERLSEARRNNH  
 PVLAIVAGSAINQDGASNGLTAPHGPSQQRVINQALANAGLTHDQVDAVEAHGTGTTLGD  
 PIEAGALHATYGHHTPDQPLWLGSIKSNIGHTQAAAGAGVVKMIQAITHATL PATLHV  
 DQPSPHIDWSSGTVRLLTEPIQWPNTDHPRTAAVSSFGISGTNAHLILQQPPTPDTTQTP  
 NPTTGSDPAVGSDSAGVSDPAVGVLVWPLSARSAPGLSAQAARLYQHLSAHPDLDPIDVA  
 HSLATTRSHHPRATITTSIEHSENNHDTTDALAALHALANNGTHPLLSRGLLTPQGP  
 KTVFVFPQGSQYPGMGADLYRQFPVFAHALDEVAALNPHLDVALLEVMSQODTAMAQ  
 LLDQTFYAQPALFALGTALHRLFTHAGIHPDYLLGHSIGELTAAYAAGVLSLQDAATLVT  
 SRGRMQSCTPGGTMLALQASEAEVQPLLEGLDHAVSIAAINGATSI VLSGDHDSLEQIG  
 EHFITQDRRTRLQVSHAFHSPHMDPILEQFRQIAAQLTFSAPTLPILSNLTGQIARHDQ  
 LASPDYWTQQLRNTVRFHDTVAALLGAGEQVFLELSPHPVLTQAITDVEQAGGGGAAP  
 ALRKDRPDVAFAAALGQLHCHGISPSWNVLYCQARPLTLPTAFQHQRWLLPTAGDFS  
 GANTHAMHPLDTELAENRGWVFTGRISPRTPWLNEHAVESAVLFPNTGFVELALHV  
 ADRAGYSSVNELIVHTPLLLAGHDTADLQITVTD TDDMGRQSLNIHSRPHIGHDNTTTGD  
 EQPEWVLHASAVLTAQTDDHNLPLTPVPWPPPGTAAIEVDDFYDDLAAQGYNYGPTFGQ  
 VQRIWRDHATPDVIAEVELPEDTDIDGYGIHPALFDAALHPLLALTQPPNTDDTNTA  
 DTGDQVRLPYAFTGISLHATHATRLRVRLTRTGADAITVHTSDTTGAPVAIIDSLITRPL  
 TTATGSAPATTAAGLLHLSWPPHPDTTDTDDTDALRYQVIAEPTQQLPRYLHDLHT  
 STDLHTSTTEADV VVWPVPVPSNEELQAHQASDTAVSSRIHTLRQTLTVQDWLTHPDT  
 TGTRLVIVTRHGVSTSAHDPVPDLAAHA VWGLIRSAQNEHPGRFTLLD TDDNTNSDTLT  
 ALTLP TRENQLAIRRDTIHIPRLTRHSSDGALTAPVVVDPEGTVLITGGTGTLGALFAEH  
 LVSAGHVRHLLTSRRGPQAHGATDLQQLTDLGAHVITACDISDPEALAALVNSVPTQ  
 HRLTAVVHTAAVLADTPVTELTGQDLQVLAPKIDAAWQLHQLTYEHNLSAFIMFSSMAG  
 MIGSPGQGN YAAANTALDALADYRHRGLPATSLAWGYWQHTGLTAHLTDVDLARMTRL  
 GLMPIATSHGLALFDAALATGQPVSI PAPINTHTLARHARDNTLAPILSALITTPRRRAA  
 SAATDLAARLNGLSPPQQQOTLATLVAAATATVLGHHTPESISPATAFKDLGIDSLTALE  
 LRNTLTHTNTGLDLPPTLIFDHPTPTALTQHLHTRLTQIESPNSEDSMLNLKNDRIESYI  
 FRNSGEDRAHVIANRLRSILSKWDGTRSPELPAELHLESATDDELFLANMFRTPTSEIS  
 PTLEGGRGVN\*

FIGURE 12(continued)

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## MlsA2 protein

VVSTEENLRVYLKQVITDLHQMARLRKIEKQRSERVAVVGMACRFPGGVASADQLWDLV  
 IAGRDVVGNF PADRGWDEGLFDPDPAVGKTYTRYGAFLDDAAGFDAGFFGISPREARA  
 MDPQQRLLLEVCWEALETAGIPAHTLACTSTGVFVGAWAQSYGATNSDGAEGYAMTGGST  
 SVMSGRIAYTLGLEGPATVDTACSSSLVAIHLACQSLRNESQLALAGGVTVMSTPAVF  
 TEFSRQRGLAPDGRCKAFAATADGTGWGEGA AVLVLERLSEARRNNHPVLAIVAGSAINQ  
 DGASNGLTAPHGPSQQRVINQALANAGLTHDQVDAVEAHGTGTTLGDPFEASALHATYGH  
 HHTPDQPLWLGSIKSNIGHTQAAAGAAGVVVKMIQAI THATLPATLHVDQPSPHIDWSSGT  
 VRLLEPIQWPNTDHPRTAAVSSFGISGTNAHLILQQPPTPDTTQTPTTTTGSDPAVGSD  
 SAVGSDPAVGVLVWPLSARSAPGLSAQAARLYQHLSAHPDLDPIDVAHSLATTRSHHPHR  
 ATITTSIEHHSENNHDTTDALAALHALANNGTHPLLSRGLLTPOGPGKTVFVFPQGGSQY  
 PGMGADLYRQFPVFAHALDEVAAALNPHLDVALLEVMSQODTAMAQLLDQTFYAQPALF  
 ALGTALHRLFTHAGIHPDYLLGHSIGELTAAYAAGVLSLQDAATLVTSRGRMLQSCTPGG  
 TMLALQASEAEVQPLLEGLDHAVSIAAINGATSIVLSGDHDSLEQIGEHFITQDRRTTRL  
 QVSHAFHSFHMDFILEQFRQIAAQLTFSAPTLPILSNLTGQIARHDQLASPDYWTQQLRN  
 TVRFHDTVAALLGAGEQVFELESPHPVLTQAITDTVEQAGGGGAAPALRKDRPDVAFA  
 AALGQLHCHGISPSWNVLYCQARPLTLPYAFQHQRVWLLPTAGDFSGANTHAMHPLLD  
 ATELAENRGWVFTGRISPRTPQFWLNEHAVESAVLFPGTGFEVALHVAADRAGYSSVNELI  
 VHTPLLLAGHDTADLQITVTDTDMMGRQSLNIHSHPHIGHDNTTTGDEQPEWVLHASAVL  
 TAQTTDHNHPLPTPVWPVPPGTAAIEVDYDDLAAQGYNYGPTFQGVQRIWRDHATPDV  
 IYAEVELPEDTDIDGYGIHPALFDAALHPLLALTQPPNTDNTDNTADTGDQVRLPYAFT  
 GISLHATHATRLRVRLTRTGADAITVHTSDTTGAPVAIIDSLITRPLTTATGSAPATTAA  
 GLLHLSWPPHPDTTTTDITD DALRYQVIAEPTQQLPRYLHDLHTSTD LHTSTTEADV  
 WVPVVPSPNEELQAHQASDTAVSSRIHTLTRQTLTVVQDWLTHPDTTGTRLVIVTRHGVST  
 SAHDPVPDLAHA AVWGLIRSAQNEHPGRFTLLDNTNSDTLTALTLP TRENQLAIRR  
 DTIHIPRLTRTAVLT PPD SGFWRLDTTGKGLANLALLPTAHTALASGQIRIDVRAAGLN  
 FHDVVVALGLIPDDGFGGEAAGVISEIGPDVYGFVAGDAVTGMTVSGAFAPSTVADHRMV  
 MTIPARWSFPQAASIPVVF LTAYIALAEISGLSRGQVRVLIHAGTGGVGMAAIQLAHLGA  
 EVFATASAAKWSTLEALGVPRDHIASSRTLD FSNAFLDATNGAGVDVVLNCLSGEFVEAS  
 LALLPRGGHFVEIGKTDIRDTEVIAATHPGVIYRALDLSVSPDHIQRTLAQLSPLFATD  
 TLKPLPTTNYSIYQAI SALRMSQARHTGKIVLTAPVVVDPEGTVLITGGTGTLGALFAE  
 HLVSANHGVRHLLTSRRGPQAHGATDLQQLTDLGAHVTTITACDISDPEALAALVNSVPT  
 QHRLTAVVHTAAVLADTPVTELTGDQLDQVLAPKIDAAWQLHQLTYEHNLSAFIMFSSMA  
 GMIGSPGQGN YAAANTALDALADYRHRLGLPATSLAWGYWQTRTGVTALHTDVDLARMTR  
 LGLMPIATSHGLALFDAALATGQPVSI PAPINTHTLARHARDNTLTPILSALITTPRRRA  
 ASAATDLAARLNGLSPPQQQQTLATLVAAATATVLGHHTFESISPATAFKDLGIDSLTAL  
 ELRNTLTHNTGLDLPPTLI FDHPTPHALTQHLHTRLTQSHTPVGP IASLLSHAIDEGKFR  
 AGADLLMAASNLNQSF SNMAELNQLPAVTDIADASPDGLLTICISTSENEYARLAAANI  
 HSLTFAEIAAPGFYDAQLPNSIETSAEALATAITGAYANTSIVLVAHSIVCELAQATMTR  
 LQDADIDLVLGLLDPLEGTNSTEDYVETVLTRIEHINAPRVGVDGYLAALGRYLQFHED  
 RRIPIPETRHMTLHSDTKIDRAQTPMNLQDEAALTALKIGNWMNDTGSIAVTLRDGPVF  
 LGRARSVNMR\*

FIGURE 13

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## MslB protein

VIFGDAHQNCRGGRVLGDAVAVVGMSCRVPGASDPDALWALLRDGISVVDEIP SARWNLD  
 GLVAHRLTDEQRSALRHGAFLDDVEGFDAAFFGINPSEAGSMDPQQRMLLELTWAALEDA  
 RIVPEHLSSGSSGVFTGAMSDDYTTAVTYRAAMTAHTFAGTHRS LIANRVSYTLGLRGPS  
 LVIDTGQSSSLVAVHVAMESLRREETSLAIAGGIHLNLSLAAALSAAHFGALSPDGRCYT  
 FDRANGYVRGEGGGVVVLKRLNDALADGNHIYCVIRGSSVNNDGATQDLTAPGVDGGRQ  
 ALLQAYERAETIDPSEVQYVELHGTGTRLGDPTEAHSLSHVFSTSTVPRSPLLVGSIKTNI  
 GHLEGAAGILGLIKTALAVHHRQLPPSLNYTPVNPKIPLQLGLRVQTTLSEWPDLDKPL  
 TAGVSSFSMGGTNAHLILQQPPTPDTTQTPNPTTGSDPAVGSDPAVGVLVWPLSARSAPG  
 LSAQAARLYQHLSAHPDLDPIDVAHSLATTRSHHPHRAITTTSTIEHSENNDHTTDALAA  
 LHALANNGTHPLLSRGLLTPOGPGKTVFVFPQGSQYPGMGADLYRQFPVFAHALDEVAA  
 ALNPHLDVALLEVFMFSQQDTAMAQLLDQTFYAQPALFALGTALHRLFTHAGIHPDYLLGH  
 SIGELTAAYAAGVLSLQDAATLVTSRGRMLQSCPTGGTMLALQASEAEVQPLLEGLDHAV  
 SIAAINGATSIDVLSGDHDSLEQIGEHFITQDRRTTRQLQVSHAFHSPHMDPILEQFRQIAA  
 QLTFSAPTLPILSNLTGQIARHDQLASPDYWTQQLRNTVRFHDTVAALLGAGEQVFLELS  
 PHPVLTQAITDVEQAGGGGAAPALRKDRPDAAVFAAALGQLHCHGISPSWNVLYCQAR  
 PLTLPTYAFQHORYWLLPTAGDFSGANTHAMHPLLDTATELAENRGWVFTGRISPRTQPW  
 LNEHAVESAVLFPNTGFVELALHVADRAGYSSVNELIVHTPLLLAGHDTADLQITVTDTD  
 DMGRQSLNIHSHPHIGHDNTTTGDEQPEWVLHASAVLTAQTDDHNLPLTPVPWPPPGTA  
 AIEVDDFYDDLAAQGYNYGPTFGQVQRIWRDHATPDVYIAEVELPEDTIDGYGIHPALF  
 DAALHPLLALTPOPTNDTDDTNTADTGDQVRLPYAFTGISLHATHATRLRVRLTRTGADA  
 ITVHTSDTTGAPVAIIDSLITRELTATGSAPATTAAGLLHLSWPPHPDTTTTDTDTDA  
 LRYQVIAEPTQQLPRYLHDLHTSTDLHTSTTEADVVPVPSNEELQAHQASDTAVSS  
 RIHTLTRQTLTVVQDWLTHPDTTGTRLVIVTRHGVSTSAHDPVPDLAAHAAVWGLIRSAQN  
 EHPGRFTLLTDNTNSDTLTALTPTRENQLAIRRDTIHPRLTRHSSDGALTAPVVV  
 DPEGTVLITGGTGLGALFAEHLVSAHGVRHLLTSRRGPQAHGATDLQQLTDLGAHVT  
 ITACDISDPEALAAALVNSVPTQHRLTAVVHTAAVLADTPVELTGDQLDQVLAPKIDAAW  
 QLHLQTYEHNLSAFIMFSSMAGMIGSPGQGNVAAANTALDALADYRHLGLPATSLAWGY  
 WQHTHTGLTAHLTDVDLARMTRLGLMPIATSHGLALFDAALATGQPVSIAPINTHTLARH  
 ARDNTLAPILSALITTPRRRAASAATDLAARLNGLSPOQQQQTLATLVAAATATVLGHHT  
 PESISPATAFKDLGIDSLTALELRNTLTHTNGLNLSSTLIFDHPTPHAVAEHLLEQIPGI  
 GALVPAPVVAAGRTEEPVAVVGMACRFPGGVSADQLWDLVIAGR DVVGNFPADRGWDV  
 EGLFDPDPDAVGKTYTRYGAFLDDAAGFDAGFFGISPREARAMDPQQRLLLEVWCWEALET  
 AGIPAHTLAGTSTGVFVGAWAQSYGATNSDDAEGYAMTGGATSVMSGRIAYTLGLEGPAT  
 TVDTACSSSLVAIHLACQSLRNNSQLALAGGVTVMSTPAVETEFSSRQRLAPDGRCKAF  
 AATADGTGWGEGA AVLVLRLSEARRNNHPVLAIVAGSAINQDGASNGLTAPHGPSQQRV  
 INQALANAGLTHDQVDAVEAGTGTTLGDP IEASALHATYGHHTPDQPLWLGSIKSNIG  
 HTQAAAGAAGVVKMIQAITHATLPATLHVDQPSPHIDWSSGTVRLLTEPIQWPNTDHPRT  
 AAVSSFGISGTNAHLILQQPPTPNPTQTPEDCSPAQSPCATITDAGTGLSFVPWVISAKS  
 AEALSAQASRLRLRLDDDPVDAIDLWLSLIATRSMFEHRAVVVGADRHQLQRLAELAS  
 GNLGADVVGARARAAGETVMVFPGQGSQRLMGQAQLYEQFPVFAAFDDVVDALDQYLRL  
 PLRQVMWGDDGLNSTEFAQPSLFAVEVALEFALLRFWGVVPDYVIGHSVGELAAQVAG  
 VLSLQDAAKLVSARGRLMQALPAGGAMVAVAASQHEVEPLLVEGV DIAALNAPGSVVISG  
 DQAAVRLIANRLADRGYRAHELAVSHAFHSSLMEPMLEEFARLASEIVEQPQIPLISNV  
 TGQLANADYGSAGYWVDHIRRPVRFADSVASLEAMGASCFIEVGPASGLGAAIEQSLKSA  
 EPTVSVSALSTDKPESVAVLRAAARLSTSGIPVDWQSVFDRSTQT VNLPTYAFQRQRFW  
 LDANRIGQGPASQPPAQNVESRFWEAVEREDVDGLADSIGVTASAMQTVLPALSSWRRRA  
 ERTQSELD SWRYQVTLWSSPATPSSITLSGIWLLIVPSELAKTDPVIGCAAALAEAHGALV  
 TIITIFEPDFNRSLMGASLKDIGSHISGVISFLGIHGSEFSDSGAVKTLNLVQAMGDVHL  
 DVPLWCLTQGA VVISADDLIRCSSAALVWGLGRVVALEHPSWGGLVDLPESPDDA AWER  
 LCALLAQPTDEDQFAIRPSGVFLRRLIHAPATTTSKSSTAWAPRGTVLITGGTGALGAHV  
 ARWLAKHYESVDLLTSRRGMAADGATELVDDLRTAGASVTVHACDVTDRTSVEAAIAGK  
 SLDAVFHLAGRHOPTLLTELEDESFSDELAPKVHGAQVLSDITSNLTLSAFVMFSSVAGI  
 WGGKSQGGAYAAANAFLD SLAEKRRTLGLPATSVAWGLWAGGGMGRPSASGLNLIGLKSM  
 SADLAVQALS DAIDRQATLTVASVNWDRFYPTFALARPRPFLHEITEVMAYRESMRSSS  
 ASTATLLTSKLAGLTATEQRAVTRKVLVDQAASVLGYASTESLDTHESFKDLGFDLSLTAL

FIGURE 14

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ELRDHLQTATGLNLSSTLI FDHPTPHAVAEHLLEQIPGIGALVPAPVVIAAGRTEEPVAV  
VGMACRFPGGVASADQLWDLVIAGR DVVGNFPADRGWDVEGLFDPDPDAVGKTYTRYGAF  
LDDAAGFDAGFFGISPREARAMDPQORLLEVCWEALETAGIPAHTLAGTSTGVFVGAWA  
QSYGATNSDDAEGYAMTGGATSVMSGRIAYTLGLEGPATITVDTACSSSLVAIHLACQSLR  
NNESQLALAGGVTVMSTPAVFTEFSRQRLAPDGRCKAFAATADGTGWGEGA AVLVLERL  
SEARRNNHPVLAIVAGSAINQDGASNGLTAPHGPSQQRVINQALANAGLTHDQVDAVEAH  
GTGTTLGDP IEASALHATYGHHTPDQPLWLGSIKSNIGHTQAAAGAAGVVKMIQAITHA  
TLPATLHVDQPSPHIDWSSGTVRLLEPIQWPNTDHPRTAAVSSFGISGTNAHLILQQPP  
TPNPTQTPEDCSPAQSPCATITDAGTGLSFVPWVISAKSAEALSAQASRLLTRLDDDPVV  
DAIDLWGLIATRSMLFEHRAVVVGADRHQLQRLAELASGNLGADV VVGRARAAGETVMV  
FPGQGSQRLGMAQLYEQFPVFAAFDDVDALDQYLRLPLRQVMWGDDDEGLLNSTEFQ  
PSLFAVEVALFALLRFWGVVPDYVIGH SVGELAAQVAGVLSLQDAAKLV SARGRLMQAL  
PAGGAMVAVAASQHEVEPLLVEGVDIAALNAPGSVVISGQAAVRLIANRLADRGYRAHE  
LAVSHAFHSSLMEMPMEEFARLASEIVEQPQIPLISNVTGQLANADYGSAGYWDHIRR  
PVRFADSVASLEAMGASC FIEVGPASGLGAAIEQSLKS AEPTVSVSALSTDKPESVAVLR  
AAARLSTSGIPVDWQSVFDGRSTQTVNLP TYAFQRQRFLDANRIGQGD PASQPAQNV  
SREWEAVEREDVDGLADSIGVTASAMQTVLPALSSWRRARTQSELD SWRYQVTWLSSPA  
TPSSITLSGIWLLIVPSELAKTDPVIGCAALEAHGALVTIITIFEPDFNRSLMGASLKD  
IGSHISGVISFLGIHGSEFSDSGAVKTLNLVQAMGDVHLDVPLWCLTQGA VSI SADDLIR  
CSSAALVWGLGRVVALEHPGSWGGLVDLPESPDAAWERLCALLAQPTDEDQFAIRPSGV  
FLRRLIHAPATTTSKSS TAWAPRGTVLITGGTGALGAHVARWLAKHYESVDLLTSRRGM  
AADGATELVDDLRTAGASVTVHACDVTDRTSVEAAIAGKSLDAVFHLAGRHOPTLLTELE  
DESFSDELAPKVHGAQVLS DITSNLTLSAFVMFSSVAGIWGKSGQAYAAANAFDLSLAE  
KRRTLGLPATSVAVGLWAGGMDRPSASGLNLIGLKSMSADLAVQALS DAIDRPOATLT  
VASVNWDRFYPTFALARPRPFLHEITEVMAYRESMRSSSASTATLLTSKLAGLTATEQRA  
VTRKLVLDQAASVLGYASTESLDTHESFKDLGFDLSLTALERDHLQTATGLNLSSTLI FD  
HPTPHAVAEHLLEQIPGIGALVPAPVVIAAGRTEEPVAVVGMACRFPGGVASADQLWDLV  
IAGR DVVGNFPADRGWDVEGLFDPDPDAVGKTYTRYGAF LDDAAGFDAGFFGISPREARA  
MDPQORLLEVCWEALETAGIPAHTLAGTSTGVFVGAWAQSYGATNSDDAEGYAMTGGAI  
SVMSGRIAYTLGLEGPATITVDTACSSSLVAIHLACQSLRNNESQLALTGGVTVMSTPAIF  
TEFSRQRLAPDGRCKAFAATADGTGWGEGA AVLVLERLSEARRNNHPVLAIVAGSAINQ  
DGASNGLTAPHGPSQQRVINQALANAGLTHDQVDAVEAHGTGTTLGDP IEASALHATYGH  
HHTPDQPLWLGSIKSNIGHTQAAAGAAGVVKMIQAITHATLPATLHVDQPSPHIDWSSGT  
VRLLEPIQWPNTDHPRTAAVSSFGISGTNAHLILQQPPPTDPTTQTPNTTTS GSDPAVGS  
PAVGVLVWPLSARSAPGLSAQAARLYQHLSAHPDLDPIDVAHSLATTRSHHPRATITTS  
IEHSENNDHTTDLAALHALANNNGTHPLLSRGLLTPOGPGKTVFVFPQGSQY PGMGAD  
LYRQFPVFAHALDACDAALQPFTGWSVLAVLHDEPEAPSLERVDVVPVLF SVMVSLAAL  
WRWAGITPD AVIGHSGEIAAAHVAGALTPEAAAVVALRSRVLTDLAGAGAMASVLSPE  
EPLTQLLARWDGKITVA AVNGPASAVVSGDTTATELLITCEHENIDARAIPVDYPSHSP  
YMEHIRHQFLDELPELT PRPSTIAMYSTVDGEPHDTAYDTTMTADYWRNIRNTVRFDH  
TVAALLGAGEQVFLS PHPVL TQAITD TVEQAGGGGA AVPALRKDRPDAVAFAAALGQL  
HCHGISPSWNVLYCQARPLTLPT YAFQHQR YWLLPTAGDFSGANTHAMHPLLD TATELAE  
NRGWFTGRISPRTPQWLNEHAVESAVLFPGTGFVELALHVADRAGYSSVNELIVHTPLL  
LAGHDTADLQITVTD TDDMGRQSLNIHSRPHIGHDNTTGTGEQPEWVLHASAVLTAQT TD  
HNHLPLTPVWPPPGTAAIEVDDFYDDLAAQGYNYGPTFQGVQRIWRDHATPDVIYAEVE  
LPEDTDIDGYGIHPALFDAALHPLLALTQPPTNDTDDTNTADTGDQVRLPYAFTGISLHA  
THATRLRVLRTGTADAITVHTSDTTGAPVAIIDSLITRPLTTATGSAPATTAAGLLHLS  
WPPHPD TTTDTDT DALRYQVIAEPTQQLPRYLHDLHTSTDLHTSTTEADV VVWPVPVP  
SNEELQAHQASDTAVSSRIHTLTRQTLTVVQDWLTHPDTTGTRLVIVTRHGVSTSAHPV  
PDLAAHAAVWGLIRSAQNEHPGRFTLLD TDDNTNSDTLTALTLP TRENQLAIRRDTIHIP  
RLTRHSSDGALTAPVVVDPEGTVLITGGTGTLGALFAEHLVSAHGVRHLLLSRRGPQAH  
GATDLQQRITDLGAHVITITACDISDPEALALVNSVPTQHRLTAVVHTAAVLADTPVTEL  
TGDQLDQVLAPKIDAAWQLHQLTYEHNLSAFIMFSSMAGMIGSPGQGN YAAANTALDALA  
DYRHRLGLPATSLAWGYWQHTGLTAHLTDVDLARMTRLGLMPIATSHGLALFDAALATG  
QPVSIPAPINTHTLARHARDNTLAPILSALITTPRRRAASAATDLAARLNGLSPOQQQQQT  
LATLVAAATATVLGHHTPESISPATAFKDLGIDSLTAL ELRNTLTHNTGLDLPPTLI FDH  
PTPHAVAEHLLEQIPGIGALVPAPVVIAAGRTEEPVAVVGMACRFPGGVASADQLWDLVI

FIGURE 14(continued)



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AGRDVVGNFPADRGWDVEGLFDPDPDAVGKTYTRYGAFLDDAAGFDAGFFGISPREARAM  
 DPQORLLLEVCWEALETAGIPAHTLAGTSTGVFAGAWAQSYGATNSDDAEGYAMTGGSTS  
 VMGRIAYTLGLEGPATVDTACSSSLVAIHLACQSLRNNEQLALAGGVTVMSTPAVFT  
 EFSRQRLAPDGRCKAFAATADGTGFGEAAVLVLERLSEARRNNHPVLAIVAGSAINQD  
 GASNGLTAPHGPSQQRVINQALANAGLTHDQVDAVEAHGTGTLGDPIEASALHATYGH  
 HTPDQPLWLGSIKSNIGHTQAAAGAAGVVKMIQAITHATLTPATLHVDQPSPHIDWSSGT  
 RLLTEPIQWPNTDHPRTAAVSSFGISGTNAHLILQQPPTPDTTQTPNPTTGSDDPAVGS  
 DPAVGVLVWPLSARSAPGLSAQAARLYQHLSAHPDLDPIDVAHSLATTRSHHPRATITTSI  
 EHSENNHDTTDALAALHALANNGTHPLLSRGLLTPQGPVKTVFVFPQGSQYPGMGADL  
 YRQFPVFAHALDEVAALNPHLDVALLEVMSQODTAMAQLDQTFYAQPALFALGTALH  
 RLFTAGIHPDYLLGHSIGELTAAYAAGVLSLQDAATLVTSRGRMLQSCPTGGTMLALQA  
 SEAEVQPLLEGLDHAIVSIAAINGATSIVLSGDHDSLEQIGEHFITQDRRTTRLQVSHAFH  
 SPHMDPILEQFRQIAAQLTFSAPTLEPILSNLTGQIARHDQLASPDYWTQQLRNTVRFHDT  
 VAALLGAGEQVFLELSPHPVLTQAITDTVEQAGGGGAAPALRKDRPDVAFVAAALGQLH  
 CHGISPSWNVLYCQARPLTLPTAFQHQRYWLLPTAGDFSGANTHAMHPLDTELAEN  
 RGWVFTGRISPRTPQWLNEHAVESAVLFPGTGFVELALHVAADRAGYSSVNELIVHTPLLL  
 AGHDTADLQITVTDTDMMGRQSLNIHSRPHIGHDNTTTGDEQPEWVLHASAVLTAQTTDH  
 NHLPLTPVPWPPPGTAAIEVDDFYDDLAAQGYNYGPTFGQVQRIWRDHATPDVIYAEVEL  
 PEDTDIDGYGIHPALFDAALHPLLLALTQPPNTDDTNTADTGDQVRLPYAFTGISLHAT  
 HATRLRVRLTRTGADAITVHTSDTTGAPVAIIDSLITRPLTTATGSAPATTAAGLLHLSW  
 PPHPDTTTDDTDDALRYQVIAEPTQQLPRYLHDLHTSTDLTSTTEADVVPVVPVPS  
 NEELQAHQASDTAVSSRIHTLTRQTLTVVQDWLTHPDTTGTRLVIVTRHGVSTSAHDPVP  
 DLAAHAHVGLIRSAQNEHPGRFTLLDNTDNTSDTLTALTLPTRNQLAIRRDTHIPIR  
 LTRHSSDGALTAPVVVDPEGTVLITGGTGTLGALFAEHLVSAHGVRHLLLSRRGPQAHG  
 ATDLQORLTDLGAHVTTTACDISDPEALAALVNSVPTQHRLTAVVHTAAVLADTPVTELT  
 GDQLDQVLAPKIDAAWQLHQLTYEHNLSAFIMFSSMAGMIGSPGQGNVAAANTALDALAD  
 YRHLGLPATSLAWGYWQHTGLTAHLTDVDLARMTRLGLMPIATSHGLALFDAALATGQ  
 PVSIPAPINTHTLARHARDNTLAPILSALITTPRRRAASAATDLAARLNGLSPPQQQOTL  
 ATLVAATATVLGHHTPESISPATAFKDLGIDSLTALELRNTLTHNTGLDLPLPTLIFDHP  
 TPHAHAHVHLLLEQIPGIGALVPAAPVIAAGRTEEPVAVVGMACRFPGGVASADQLWDLVIA  
 GRDVVGNFPADRGWDVEGLFDPDPDAVGKTYTRYGAFLDDAAGFDAGFFGISPREARAMD  
 PQORLLLEVCWEALETAGIPAHTLAGTSTGVFAGAWAQSYGATNSDDAEGYAMTGGATSV  
 MSGRIAYTLGLEGPATVDTACSSSLVAIHLACQSLRNNEQLALAGGVTVMSTPAVFT  
 EFSRQRLAPDGRCKAFAATADGTGFGEAAVLVLERLSEARRNNHPVLAIVAGSAINQD  
 ASNGLTAPHGPSQQRVINQALANAGLTHDQVDAVEAHGTGTLGDPIEASALHATYGH  
 HTPDQPLWLGSIKSNIGHTQAAAGAAGVVKMIQAITHATLTPATLHVDQPSPHIDWSSGT  
 RLLTEPIQWPNTDHPRTAAVSSFGISGTNAHLILQQPPTPDTTQTPNPTTGSDDPAVGS  
 DPAVGVLVWPLSARSAPGLSAQAARLYQHLSAHPDLDPIDVAHSLATTRSHHPRATITTSI  
 EHSENNHDTTDALAALHALANNGTHPLLSRGLLTPQGPVKTVFVFPQGSQYPGMGADLY  
 RQFPVFAHALDACDAALQFTGWSVLAVLHDEPEAPSLERVVQPVLFVSVMSLAALWR  
 WAGITPDVIGHSGQGEIAAAHVAGALTPEAAAVVALRSRVLTDLGAGAMASVLSPEEP  
 LTQLLARWDGKITVAAVNGPASAVVSGDTTATELLITCEHENIDARAI PVDYPSHSPYM  
 EHIRHQFLDELPELTTPRSTIAMYSTVDGEPHTAYDTTMTADYWRNIRNTVRFHDTV  
 AALLGAGEQVFLELSPHPVLTQAITDTVEQAGGGGAAPALRKDRPDVAFVAAALGQLHC  
 HGISPSWNVLYCQARPLTLPTAFQHQRYWLLPTAGDFSGANTHAMHPLDTELAENR  
 GWVFTGRISPRTPQWLNEHAVESAVLFPGTGFVELALHVAADRAGYSSVNELIVHTPLLLA  
 GHDTADLQITVTDTDMMGRQSLNIHSHPHIGHDNTTTGDEQPEWVLHASAVLTAQTTDHN  
 HLPLTPVPWPPPGTAAIEVDDFYDDLAAQGYNYGPTFGQVQRIWRDHATPDVIYAEVELP  
 EDTDIDGYGIHPALFDAALHPLLLALTQPPNTDDTNTADTGDQVRLPYAFTGISLHATH  
 ATRLRVRLTRTGADAITVHTSDTTGAPVAIIDSLITRPLTTATGSAPATTAAGLLHLSW  
 PPHPDTTTDDTDDALRYRVIAEPTQQLPRYLHDLHTSTDLTSTTEADVVPVVPVPSN  
 EELQAHQASDTAVSSRIHTLTRQTLTVVQDWLTHPDTTGTRLVIVTRHGVSTSAHDPVPD  
 LAHAHVWGLIRSAQNEHPGRFTLLDNTDNTSDTLTALTLPTRNQLAIRRDTHIPIRL  
 TRHSSDGALTAPVVVDPEGTVLITGGTGTLGALFAEHLVSAHGVRHLLLSRRGPQAHGA  
 TDQLQRLTDLGAHVTTTACDISDPEALAALVNSVPTQHRLTAVVHTAAVLADTPVTELTG  
 DQLDQVLAPKIDAAWQLHQLTYEHNLSAFIMFSSMAGMIGSPGQGNVAAANTALDALADY  
 RHRLGLPATSLAWGYWQHTGLTAHLTDVDLARMTRLGLMPIATSHGLALFDAALATGQP

FIGURE 14(continued)



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VSIPAPINTHTLARHARDNTLAPILSALITTPRRRAASAATDLAARLNGLSPPQQQQQT  
 TLVAAATATVLGHHTPESISPATAFKDLGIDSLTALELRNTLTHNTGLDLPPTLIFDHPT  
 PHAVAEHLLEQIPGIGALVPAPVIAAGRTEEPVAVVGMACRFPGGVASADQLWDLVIAG  
 RDVVGNFADRGWDVEGLFDPDPDAVGKTYTRYGAFLDDAAGFDAGFFGISPREARAMDP  
 QORLLEVCWEALETAGIPAHTLAGTSTGVFAGAWAQSYGATNSDDAEGYAMTGGATSVM  
 SGRIAYTLGLEGPATVDTACSSSLVAIHLACQSLRNNEQLALAGGVTVMSTPAVFTEF  
 SRQRLAPDGRCKAFAATADGTGFGEGAALVLERLSEARRNNHPVLAIVAGSAINQDGA  
 SNGLTAPHGPSQQRVINQALANAGLTHDQVDAVEAHGTGTLGDPIEASALHATYGHHT  
 PDQPLWLGSIKSNIGHTQAAAGAAGVVKMIQAITHATLPAHLHVDQPSPHIDWSSGTVRL  
 LTEPIQWPNTDHPRTAAVSSFGISGTNAHLILQQPPTPDTTQTNTTTGSDPAVGSDPAV  
 GVLVWPLSARSAPGLSAQAARLYQHLSAHPDLDPIDVAHSLATTRSHHPRATITTSIEH  
 HSENNHDTTDALAALHALANNGTHPLLSRGLLTPOGPGKTVFVFPQGGSQYPMGADLYR  
 QFPVFAHALDACDAALQPF TGWSVLAVLHDEPEAPSLERVDVVPVLFVSMVSLAALWRW  
 AGITPDAVIGHSQGEIAAAHVAGALTPEAAAVVALRSRVLTLAGAGAMASVLSPEEPL  
 TQLLARWDGKITVAAVNGPASAVVSGDTTATELLITCEHENIDARAI PVDYPSHSPYME  
 HIRHQLDELPELT PRPSTIAMYSTVDGEPHDTAYDTTMTADYWRNIRNTVRFHDTVA  
 ALLGAGEQVFEELSHPVLTQAITDVEQAGGGGAAPALRKDRPDAVAFAAALGQLHCH  
 GISPSWNVLYCQARPLTLPTYAFQHORYWLLPTAGDFSGANTHAMHPLLDATELAENRG  
 WVFTGRISPRTPQWLNEHAVESAVLFPGTGFVELALHVADRAGYSSVNELIVHTPLLLAG  
 HDTADLQITVTD TDDMGRQSLNIHSRPHIGHDNTTTGDEQPEWVLHASAVLTAQTDDHNL  
 LPLTPVPWPPPGTAAIEVDDFYDDLAAQGYNYGPTFGQVQRIWRDHATPDVIYAEVELPE  
 TDDIDGYGIHPALFDAALHPLLALTQPPNTDDTNTADTGDQVRLPYAFTGISLHATHA  
 TRLRVRLTRTGADAITVHTSDTTGAPVAIIDSLITRPLTTATGSAPATTAAGLLHLSWPP  
 HPDTTDDTDDTALRYQVIAEPTQQLPRYLHDLHTSTDLHTSTTEADVVPVVPVPSNE  
 ELQAHQASDTAVSSRIHTLRQTLTVVQDWLTHPDTTGTRLVIVTRHGVSTSAHDPVPDL  
 AHAHVWGLIRSAQNEHPGRFTLLD TDDNTNSDTLTALTLP TRENQLAIRRDTIHIPRLT  
 RHSSDGALTAPVVVDPEGTVLITGGTGLGALFAEHLVSAHGVRHLLTSRRGPQAHGAT  
 DLQORLTDLGAHVTTACDISDPEALAALVNSVPTQHRLTAVVHTAAVLADTPVTELTGD  
 QLDQVLAPKIDAAWQLHLQTYEHNLSAFIMFSSMAGMIGSPGQGNAAAANTALDALADYR  
 HRLGLPATSLAWGYWHTGLTAHLTDVDLARMTRLGLMPIATSHGLALFDAALATGQPV  
 SIAPAPINTHTLARHARDNTLAPILSALITTPRRRAASAATDLAARLNGLSPPQQQQQT  
 LVAAATATVLGHHTPESISPATAFKDLGIDSLTALELRNTLTHNTGLDLPPTLIFDHPT  
 HAVAEHLLEQIPGIGALVPAPVIAAGRTEEPVAVVGMACRFPGGVASADQLWDLVIAGR  
 DVVGNFPADRGWDVEGLFDPDPDAVGKTYTRYGAFLDDAAGFDAGFFGISPREARAMDP  
 QORLLEVCWEALETAGIPAHTLAGTSTGVFAGAWAQSYGATNSDDAEGYAMTGGATSVM  
 SGRIAYTLGLEGPATVDTACSSSLVAIHLACQSLRNNEQLALAGGVTVMSTPAVFTEFS  
 RQRLAPDGRCKAFAATADGTGFGEGAALVLERLSEARRNNHPVLAIVAGSAINQDGAS  
 NGLTAPHGPSQQRVINQALANAGLTHDQVDAVEAHGTGTLGDPIEASALHATYGHHT  
 PDQPLWLGSIKSNIGHTQAAAGAAGVVKMIQAITHATLPAHLHVDQPSPHIDWSSGTVRL  
 TEPIQWPNTDHPRTAAVSSFGISGTNAHLILQQPPTPDTTQTNTTTGSDPAVGSDPAV  
 VLVWPLSARSAPGLSAQAARLYQHLSAHPDLDPIDVAHSLATTRSHHPRATITTSIEH  
 SENNHDTTDALAALHALANNGTHPLLSRGLLTPOGPGKTVFVFPQGGSQYPMGADLYRQ  
 FFPVFAHALDEVAALNPHLDVALLVEMFSQDDTAMAQLLDQTFYAQPALFALGTALHRLF  
 THAGIHPDYLLGHSIGELTAAYAAGVLSLQDAATLVTSRGRMQSCTPGGTMLALQASEA  
 EVQPLLEGLDHAVSIAAINGATSIVLSGDHDSLEQIGEHFITQDRRTLRQVSHAFHSPH  
 MDPPILEQFRQIAAQLTFSAPTLPILSNLTGQIARHDQLASPDYWTQQLRNTVRFHDTVAA  
 LLGAGEQVFEELSHPVLTQAITDVEQAGGGGAAPALRKDRPDAVAFAAALGQLHCHG  
 ISPSWNVLYCQARPLTLPTYAFQHORYWLLPTAGDFSGANTHAMHPLLDATELAENRGW  
 VFTGRISPRTPQWLNEHAVESAVLFPGTGFVELALHVADRAGYSSVNELIVHTPLLLAGH  
 DTDLQITVTD TDDMGRQSLNIHSRPHIGHDNTTTGDEQPEWVLHASAVLTAQTDDHNL  
 PLTPVPWPPPGTAAIEVDDFYDDLAAQGYNYGPTFGQVQRIWRDHATPDVIYAEVELPED  
 TDDIDGYGIHPALFDAALHPLLALTQPPNTDDTNTADTGDQVRLPYAFTGISLHATHA  
 RLRVRLTRTGADAITVHTSDTTGAPVAIIDSLITRPLTTATGSAPATTAAGLLHLSWPPH  
 PDDTTDDTDDTALRYQVIAEPTQQLPRYLHDLHTSTDLHTSTTEADVVPVVPVPSNEE  
 LQAHQASDTAVSSRIHTLRQTLTVVQDWLTHPDTTGTRLVIVTRHGVSTSAHDPVPDLA  
 HAAVWGLIRSAQNEHPGRFTLLD TDDNTNSDTLTALTLP TRENQLAIRRDTIHIPRLTR

FIGURE 14(continued)

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HSSDGALTAPVVVDPEGTVLITGGTGTGALFAEHLVSAHGVRHLLLSRRGPQAHGATD  
 LQQRITDLGAHVITACDISDPEALAALVNSVPTQHRLTAVVHTAAVLADTPVTELTGDQ  
 LDQVLA PKIDA AWQLHQLTYEHNLSAFIMFSSMAGMIGSPGQGNAAAANTALDALADYRH  
 RLGLPATSLAWGYWQTHTGHTAHLTDVDLARMTRLGLMPIATSHGLALFDAALATGQPV  
 IPAPINTHTLARHARDNTLAPILSALITTPRRRAASAATDLAARLNGLSPOQQQOTLATL  
 VAAATATVLGHHTPESISPATAFKDLGIDSLTALELRNTLTHNTGLDLPPTLIFDHPTPH  
 ALTQHLHTRLTQSHTPVGPIASLLSHAIDEGKFRAGADLLMAASNLNQSFNSMAELNQLP  
 AVTDIADASPDGLLTLCISTSENEYARLAAANIHSALTFAEIAAPGFYDAQLENSIETSA  
 EALATAITGAYANTSIVLVAHSIVCELAQATMTRLQDADIDLVLVLLDPLEGNTSTEDY  
 VETVLTRIEHINAPRVGVDGYLAALGRYLQFHEDRRIPIPETRHMTLHSDTKIDRAQTPM  
 NLLQDEAALTALKIGNWMNDVGVALSVNLE\*

FIGURE 14(continued)

## Mup045 protein

VIWNDIYISGTGRFIPSMRPINDIQVDGVPNDHTIVQSDYISFTEADPATVMATRAATE  
 ALTTSELVSADVGVLIIYAAIIGDAHHFAPVCHVQRVLRAPDALAFELSAASNGGTQGI  
 AANLMTADASVKAAVCTAYRHPIDIISRWSSGMVFGDGAAAVALSRDGGMVRLISGYHG  
 SLPELEVLARNRSNERLGFVLPDVLGKYLTAIARMYQAVIAQVLEEAQTSIAEIDYFGL  
 IGIGIPSLTATILEPNGIPVNKTSWGLLRQMGHVACDPLLSLNLHFEQNVLRGDKVLL  
 LGGGVGYRLTCIVAEIAMNPGVPGHSTS\*

FIGURE 15

## Mup053 protein

VRQRLNWIAAHGLLRGTARLAARLGDVQSRLVADPMVMANPAPFCDELRAIGPVVSSYGT  
 HLVVSHAIAHELLRSEDFEVVSLGSNLPA PMRWLERRTRDDT PHL LPPSL LAVEPPNHT  
 RYRKAVSSVFTPKAVAGLRDHVEETASALLDQLTDQASAVDIIARYCSQLPVAVICDILG  
 VPSRDRNRVLKFGQLAGPCLDFGLTWRQHQQVRQGLQGLHFWITEHLEELRSNPGDDLMS  
 QMIHASENGSSETHLHATEVVRMIGLVLGASFATMDLLNGIQVLLDAPELRDALSQRPO  
 LWPNAVEEILRLEPPVQLAGRMARKDTEVAGTAIKRGQLVAIYLGAVNRDPSV FADPHRF  
 DITRANANRHAFSGGRHFC LG AALARVEGEVGLRMLFERFPDVRAAGPGNRRDTRTLRG  
 WSQLPVQLGAARSMAIR\*

FIGURE 16

## Mup038 protein

MIVWPEVSTVVDVDGVAMSALVAEPDQEPKAVILALHGGATNARYFDCPGHRALSLHT  
 GAAAGFTVVALDRPGYGSSAGDPDAMNRP HQRAALAYGALDRILAQRPRGAGVFIMGHSN  
 GCELAMWMAETRGAE LLGIELAGTGWHYQPEAREILTATGEHRWVGLYDLLWHPORLY  
 PPEVLNAAIISSAPAYEEQMADWTRRTFLELVPAVRVPVHFSIAQHEKVWQRDSSALD  
 EIAVLFSGAPRFLHEQPEAGHNISLGH TAGDYHTTVLSFVQQCLAERLANAQDQVDLAA  
 E\*

FIGURE 17

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atgccagcac cgagcgtgtt tgtcggcctg gaactcgaca ccaacagtta caccggtgtg 60
ccgtgctgga gcgctggccc cgccactgg gccacaaca ccgtcgcggt ggccctacgac 120
ctgcgctatc aacagatccg gtcgctgatg tgtgacggcg gcatcgcccg aaaaaccctg 180
atcgctatcg ccgcgcccat ggcacgtcac gccgactgga gcaccggccg caactgcccg 240
cccaccaaca accagctcga agccgcgaca ggcttcacc agcgcccat ccagcgggcc 300
cacgaatgcc tacgcctact cggggtggct accgaggtgc tgcgcggccg ccaacgcacc 360
tacatcgagc gcatggcctc ctggagaatg ggcgatcgcc acccgcggtg ggcgctccgtg 420
tgggacttac acgacaacgg cgaggtcgca cgggttgctc acagcttgtc accccacctg 480
gaacggtcct cagtaaccac acacacctca cctaaaacaa gcctgtttac taccaccccg 540
ggcgccacac ggcggcgga aagcgcgct acgcgccgca acagccaga cgccggggg 600
cgcgacttg cggtcgaatg gcgagcagac cccatgctc cccatggac tcgtcggtac 660
agccctacga gctgggtcagc aatgctcgct gcccccgag ccgcaggttg gactgcacgc 720
gacgtgaccg cattgggtaca agactggctc ggtaccggtc accgaatacc gtccactcca 780
gcgcgcccga tcgcccgtg cggcacactg cttgcttggc ataccagcca caacagcatc 840
caacaccgcc cagctgcact cgaggaagca cgcgagggcg cagacctggc cgcggttcgc 900
aaacggattc aaaaacaaac cgctgaacac caccgcaacc tcgcggcgcg agaagccggc 960
cgcgcgcgac tggcggtgct cggccaccag gccgcagaa ttgctgccgc tgcgtgctgt 1020
cgcaacgcgc ccgcagcgcg caccaaaatg gtcgcggcag aagtacgag cgtcgatgag 1080
gcatcgccgc gggcccgcg cgcctaacc agcgccctac gctgacagca gttcgggtcg 1140
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agctaccggc accagttccg tcagcaagtc gccgactgg cgaataagag ccggcaactt 1260
tgttctgccc gccgcctcga gctctcgaag cttggtggta tcgaaacgta cctgcagccg 1320
gcccgccata ttgcggttct ctgagccctg acgcccgttg cgcgcgagag cctcttgctc 1380
tgcagaccga gccgtggcgc actggcgctt gaactcgggc gcgtttgtca tgggaaactc 1440
ttcaatagtg cgggatcgtc gagccggctc gggcggtac gacatgtaag ccaactgca 1500
gcaacccctg tcgcccacac gcgctcatgt aagccagaat ttttgctcgc cccaactccc 1560
atcgcccccc aagaaccgta gagagcaggc tttgaactgc ggatatcagc cgcggttggt 1620
gcaatgcgcg actggtaaac atgtaagtaa gtttgccata gaacgaggtt ttgcataacc 1680
gatctcgccg cgcgtgtcac gaaagtggcg caggacttta cttacatacc cctctctgct 1740
caagaatggg accgtgtcat cgcgcagcga accgtcgccg tatacgtctc ccgatgccg 1800
caagcagttg ggcgtcacgc ccagcgcgct gagccaaatg ctgagcagcg gcgagctgac 1860
aggcccgcaa tatccacaac aacgggttcc caagaacgcg gtgcgcgtct ggaatgggtc 1920
gctcgaccag gacttgccac gaagaaggct cactcccccc ccacgtcact cagcagaca 1980
acaacccgac cccggtgcgc atcaggggta cctcgcgcaa tggggagacc gccgggaagc 2040
gcgcgtaaac gccgctgcgc acgaactcaa agttgcccga gacctcgctc gacagcatgc 2100
cagcgacgag cgtcgaaaag cccgacagct gatgtcgaag ctgcgcgcgac tgaccatcca 2160
gcaggctgaa ctcacgaaac ggctaaaaga cgacctcgca gtggaatcgg aacgtaccga 2220
acagatcatc gatgcttact ccgatgcctt aaccagctc ctggcccccg acttcggccc 2280
accaccgtga cccgcgatca gcaggtaaat caggcgctct tctgcccggg caggaacgca 2340
ttgagcacag gggcgatcca cgtcgatcgg gtatcgaaac ccaactttga gccgatgggt 2400
tcgatgacct cctcttgctc ggcggtcaga ctaaacgcga tctgcgcgct gccaccaccg 2460
agatagcgca cggccgaagg gtcggccggg aaaaggctcg gggtaggtgc agtcagtagt 2520
cggctcttct ccatgatctc ggccagttca ccagcctggt acttgatgct gatcgctcc 2580
aaaaccacat gcaaattggt tgacttcacg ttgtgccgat acttctcga gcggtccttg 2640
acgcaggac tgacatatac cgccgtggtc ggcttgacc gactgctgg ccggccaggc 2700
ttcgctgcgc gcactttggc ggccgagaca tcagaggtct tagaggcggt tgcggcaacc 2760
ggctgtcctt caacaggtac ctgcagacga gcctgttcgg gagcactggc gggccgaggc 2820
tgggctcgct tgacgaggtc agctagacca gcgcgcgac tcttcggctt tgtgaggtct 2880
gcgagatccg cttcgggcag ctctgcggc gtttaacttg tcacggccac actcctcgt 2940
tgatcaggtc ctggcgatc tttgaacccc gcgtgagaat tctccggtc agcttgccga 3000
agtcctcgcc cagctcaca gatgtcgtg tgacgacctg agtcgcatct gctctcccct 3060
gccgtatcgc tgaccgagac ggattattga cgatttctc ctcaagttcg tgggccaacc 3120
gaccaaactt aggcacgtcc ctgccaacag cttctgagtg gcggatgaac gaatcgagca 3180
tcacgtcatc gttctgcccc aaatctgcag ccacattctt cttcatctct tcccggatcc 3240
tcgtcgatga agttcctgac gcaaacacga aacagccgag caacaccaca gatgggttgt 3300
gctcgcgcat cgcccttaga tcgcctgcca actcgcgag tccggtcctt gataggatc 3360
cggtcttctc cggaactaca acaaacccgc acgcacacag ggcgcctga agaagcaact 3420
ggttctcccg aggggaatca atgaagataa ccccgtaatg atcactgatc tgtgccaacg 3480
ccagcgccag cgacatcagc acctgtttgg cagtctcgcg gttgcccac tctgcagcca 3540
tcaccggcgc gatccgacgg acgaaaggcc caccgggaac aacatccaat cccggacgga 3600
catcggggaat cggggtaaac gcagcgccgg cagtaatcgc gctgtagaga ttcctaccct 3660
tgtctgctggc tctgtattc gcgaagccaa gcatgttcgc cagttgccc tggccgttga 3720
gatcgaccaa taaggcgcgc gctccatcgg aggcaacgag cgcggcgctg tgggtagaac 3780
acgtcgactt cctaccacca ccttgccgt tggcgaacag ataacattg cccagcttgc 3840
tccaattgac cgcgggttct accagccag cgtcgtccca aacggctacg cttctactca 3900

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FIGURE 18

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tgcgggccc ttactgtgtt ggaatcggga gaatgccgcg cctggcatgc cgcgcaccga 3960  
 accgcactgc accccacgcg ctgtcacggt ctgcagagtc tagggcgatc agctcgggtg 4020  
 catatcccta ctctgttccg gttcgcacca tcgctgtcca cttgggtgac tatgacctac 4080  
 cgtgcgcccc atgccacgcg gtctcgcacca gcaaacccaa cccaccgatg gacccccggc 4140  
 gtctgttcagg cgaacgcctg aagccgcccct cggcaccagg tgccggatca cgcgatgtcc 4200  
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FIGURE 18(continued)

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FIGURE 18(continued)

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FIGURE 18(continued)

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FIGURE 18(continued)

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FIGURE 18(continued)



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FIGURE 18(continued)

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FIGURE 18(continued)

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FIGURE 18(continued)

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FIGURE 18(continued)

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FIGURE 18(continued)

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FIGURE 18(continued)

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FIGURE 18(continued)



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acggtggaat acatcgcgat ggttgtggc cgcggtgtca gctcgggtg ctgctcagg 55500
aactgatggc ggtgtgttc catataggg gaatgagagg ggtagtcac cggtatagc 55560
cgagcgtcga tgtttcgtg ttcgaggtat atcagcaatt cgggtgatcg tgtgtatcg 55620
ccggagacca cagcgctagc gggccggtta actgcggcga cagtatctt gccgtcccac 55680

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FIGURE 18(continued)



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cgtgccagca gctgggtcag tggttcctcg ggcgatagca ctgaagccat ggcaccggca 55740
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gtcagggtctc cggccacatg tgcgcggcg atctcgccct gggagtggcc gatgactgca 55860
tcgggggtga ttcggccca ccgccagagt gcggctaacg acaccatcac cgagaacaac 55920
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gctagcaccg accatccagt gaaaggctgt aacgctgcgt cgcattgcgtc gagggcgtgg 56040
gcgaacacgg ggaattggcg gtagagatct gcgccatgc cggggtattg actgccctgt 56100
ccggggaaaca cgaacactgt tttgccgggg ccctgtgggg tcagcaggcc tctgtcagc 56160
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cgctcgaccg cctcccaaaa acgggattca acgttctggg cctgtgtgtg actggcgga 59700
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FIGURE 18(continued)

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cacaccagg ctgctgacga gcatcggatc aaatcgtcgg cgtgatcga taccgcgccc 63780
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FIGURE 18(continued)

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aatgtcttga ccgcgcgcgt atcggagaat tcggaccctg gaatccctaa gaacgatatg 63900
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actaccgccc ttaaacggtg ttgtgtgggc actgaattga ccaggcgccg cagtgtctc 67920

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FIGURE 18(continued)

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FIGURE 18(continued)

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FIGURE 18(continued)

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FIGURE 18(continued)

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FIGURE 18(continued)



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FIGURE 18(continued)



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FIGURE 18(continued)

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FIGURE 18(continued)

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FIGURE 18(continued)

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FIGURE 18(continued)

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FIGURE 18(continued)

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tccggccac	cgccagagtg	cggtcaacga	caccatcacc	gagaacaaca	caggctggac	112800

FIGURE 18(continued)

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FIGURE 18(continued)



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FIGURE 18(continued)



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FIGURE 18(continued)

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FIGURE 18(continued)

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FIGURE 18(continued)

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FIGURE 18(continued)

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tgccgagatc	gactatttcg	gctgatcgcc	tatagggaatt	ccaagtctca	cagcgactat	141360
cttagaacc	aacggtattc	cagttaataa	aacatcctgg	ggtttgctaa	gacaaatggg	141420

FIGURE 18(continued)

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ccacgttgga gcttgcgatc ccctgctgag ccttaaccac ctattcgagc agaatgtcct 141480
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tgtggctgaa atcgccatga atcccgccgt gcccgagacac tccacttcgt agtgaaaagc 141600
gaaggtgaag gccatgtctg tacgtgcgtc aaacaggctc ttcgacgttg gctgggcagt 141660
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FIGURE 18(continued)

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FIGURE 18(continued)



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FIGURE 18(continued)



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FIGURE 18(continued)

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FIGURE 18(continued)

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FIGURE 18(continued)

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gatccgcaa ccgagggcac cgcggcaccg gagacggcac cggcaccagt caaccggcg 169920
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```

FIGURE 18(continued)

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accgacacca cctgcgcgag caggctcggt aagcccgccc ccaccgcgcg tgccagcacc 170040  
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 caccgcgccc gcagaccccg gactcgggaa agagctgttg agctggatgg cgttttcag 170640  
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FIGURE 18(continued)

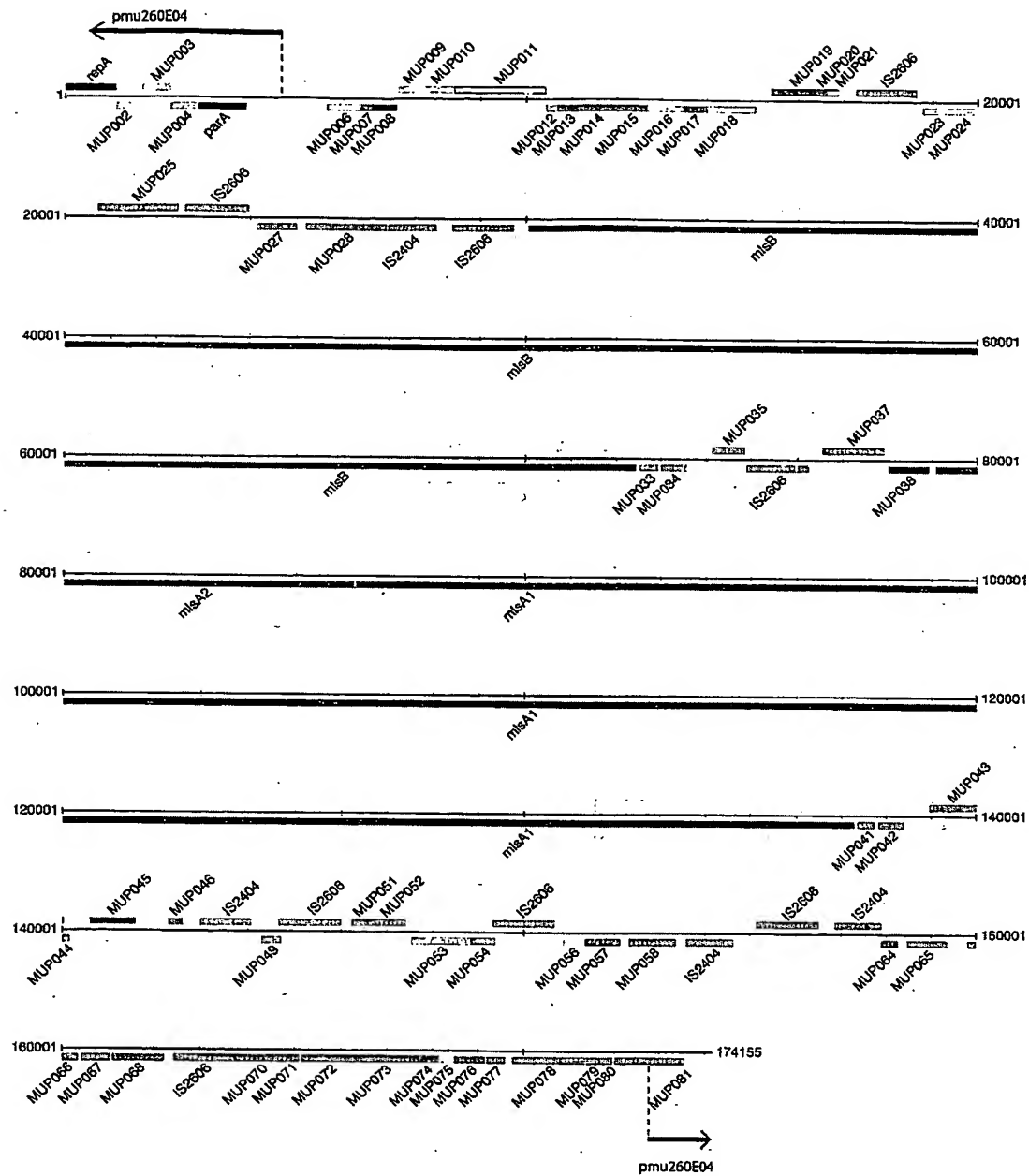


FIGURE 19

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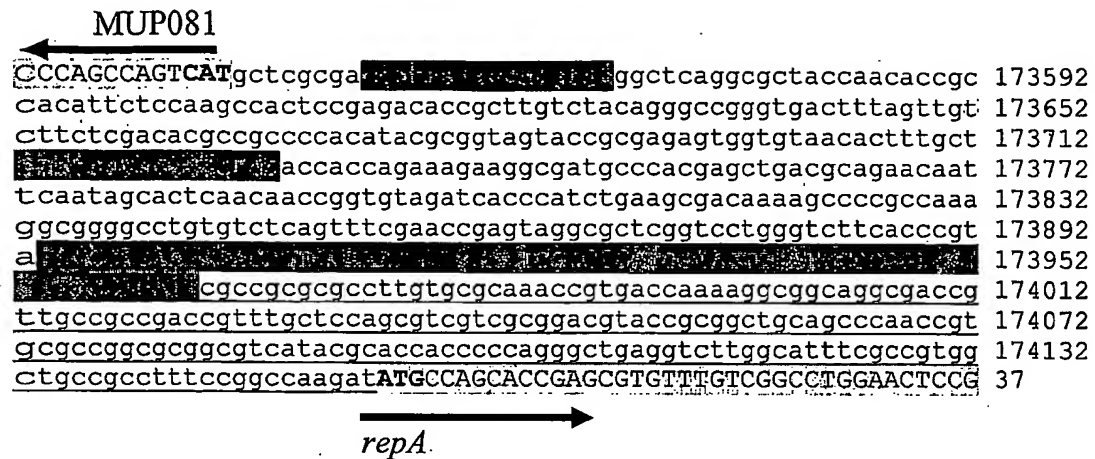


FIGURE 20

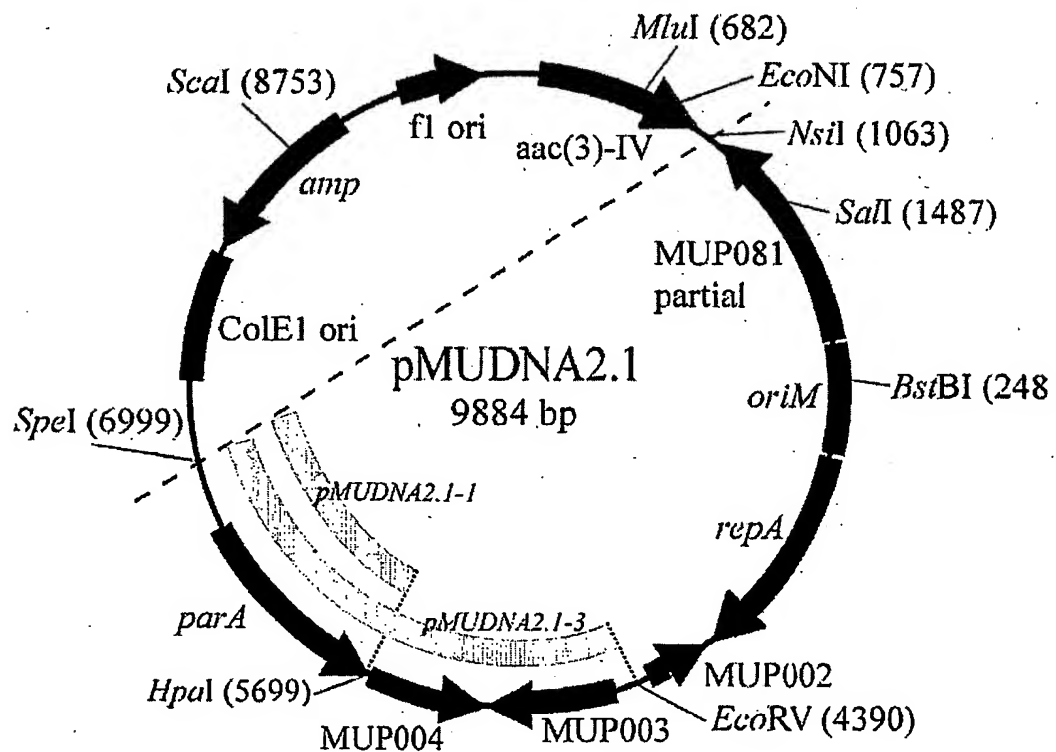


FIGURE 21

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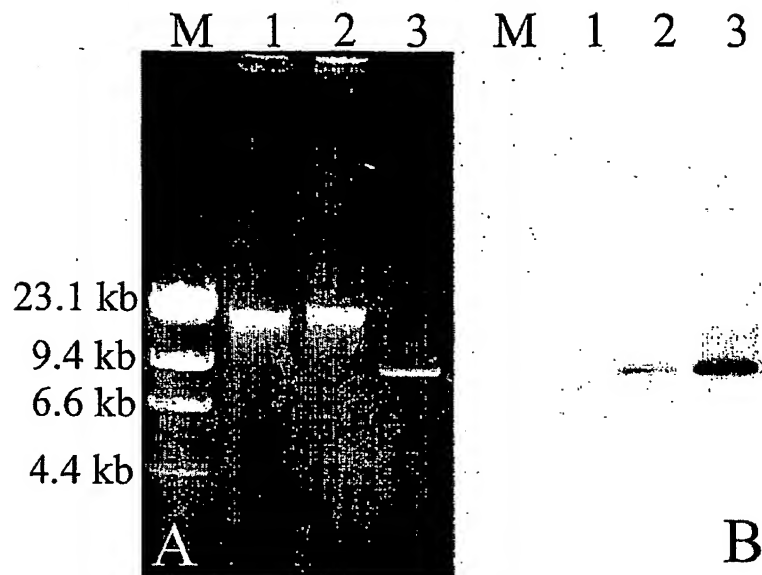


FIGURE 22A

FIGURE 22B

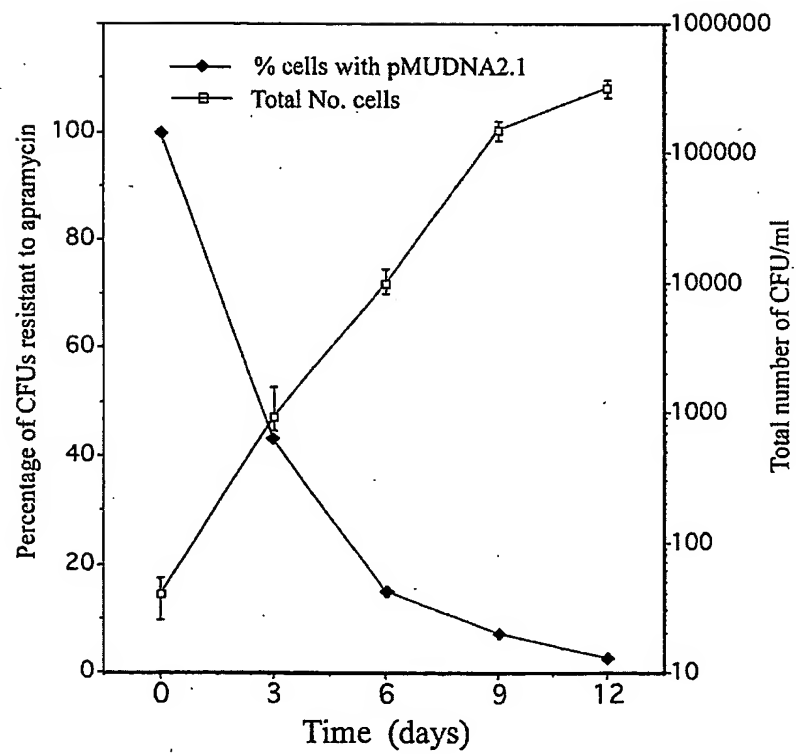


FIGURE 23



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AGCGCAGGGCGGGTGCCCAGGCCAGGGC...GCCCTGGCTGCCCAGGTATGGCT [SEQ ID NO.:59] 10 bp  
CGGCGCGGGTTGCTGCGGCGGCCAGGGC...GCCCTGCCGCGGCGGCAAGTCGG [SEQ ID NO.:60] 10 bp  
AACACCGCATTCCCCGGTCACCCAGGGC...GCCCTGCCCGGTCACCGCCGCCG. [SEQ ID NO.:61] 10 bp  
GGCAACGGATCTAGCCGGGGTGCAGGGC...GCCCTGAGCCGGGGTGCAGTCGG [SEQ ID NO.:62] 10 bp  
CGAGGCCATCGCCATCGCCGCGAGGGC...GCCCTGCATCGCCGCCGAACCCT [SEQ ID NO.:63] 10 bp  
ACGATGCCGGAGAAATCTCAGCGCAGGGC...GCCCTGAATCTCAGCGCCGGGGG [SEQ ID NO.:64] 10 bp

FIGURE 24

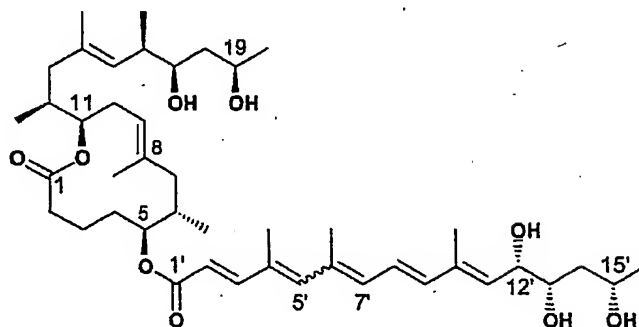


FIGURE 25

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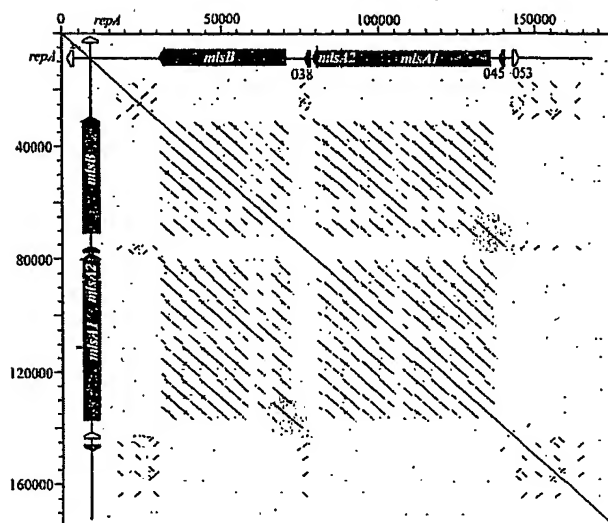
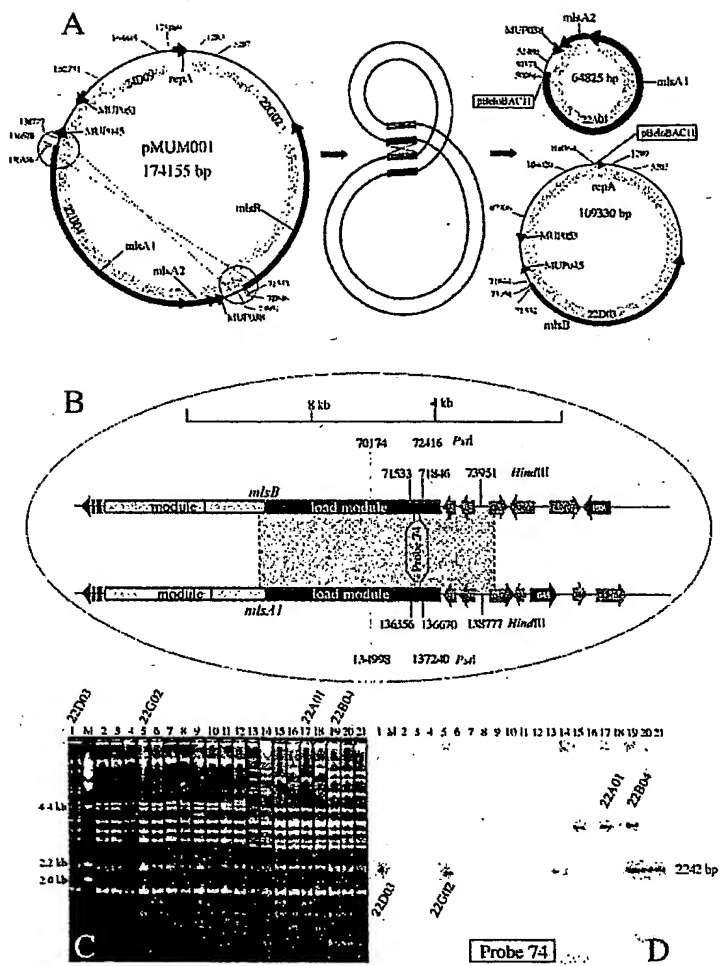


FIGURE 26



**FIGURE 27A - FIGURE 27B - FIGURE 27C - FIGURE 27D**

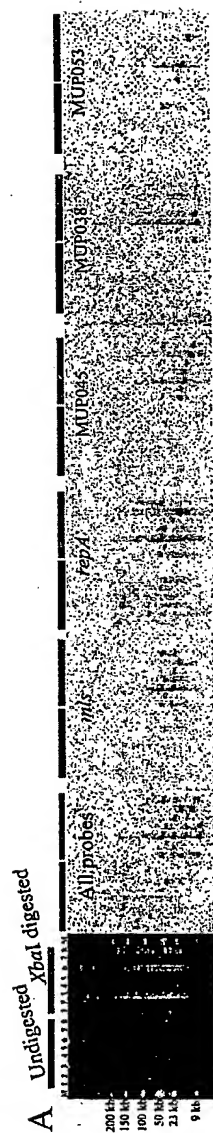
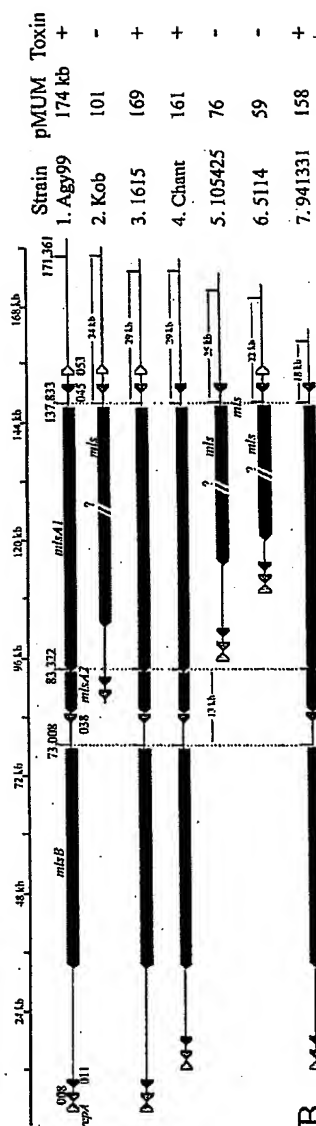


FIGURE 28A



**FIGURE 28B**

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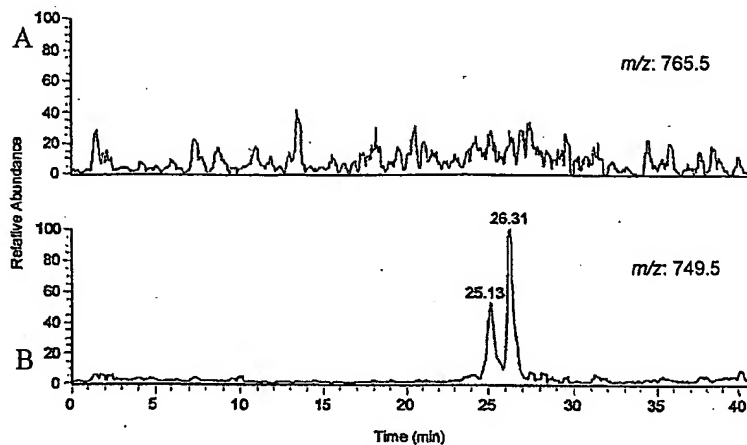


FIGURE 29A - FIGURE 29B

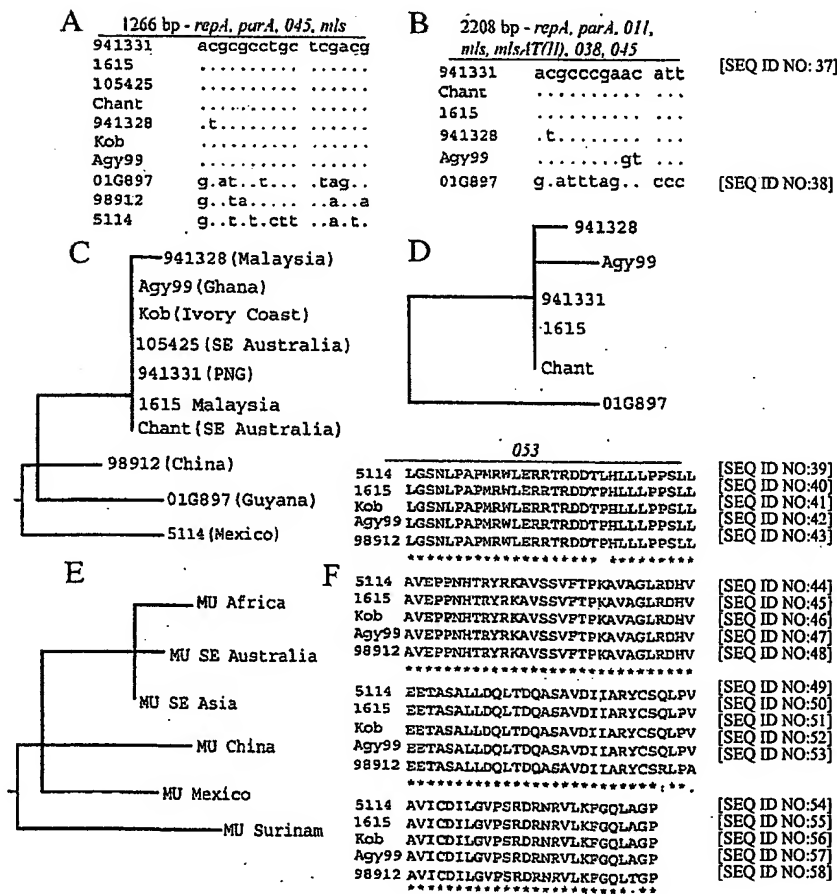


FIGURE 30A - FIGURE 30B - FIGURE 30C - FIGURE 30D - FIGURE 30E - FIGURE 30F

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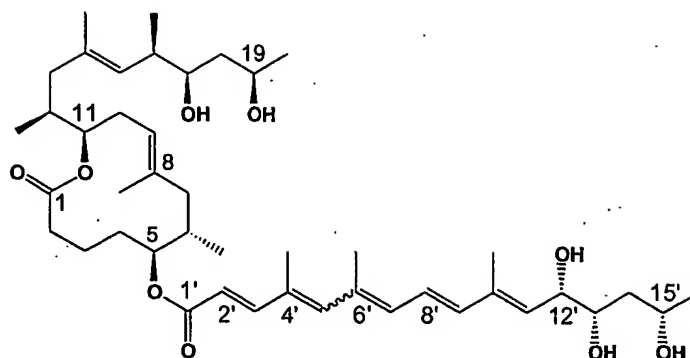


FIGURE 31A

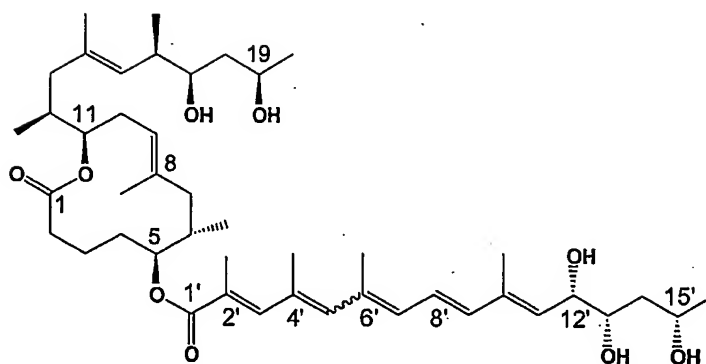


FIGURE 31B

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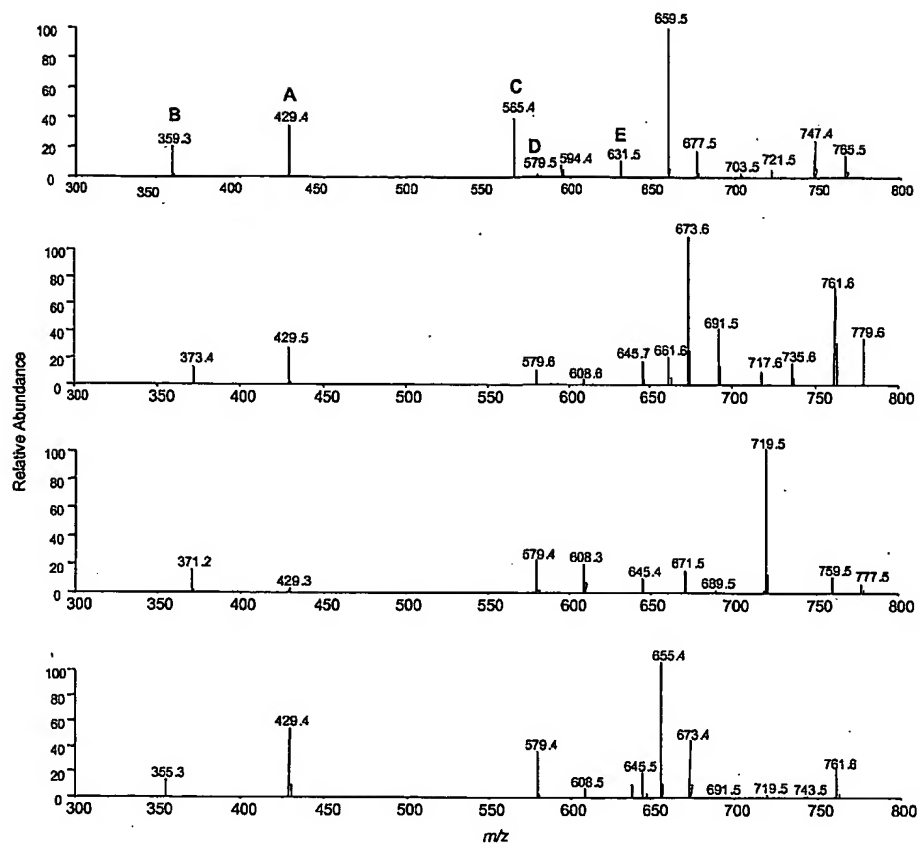


FIGURE 32

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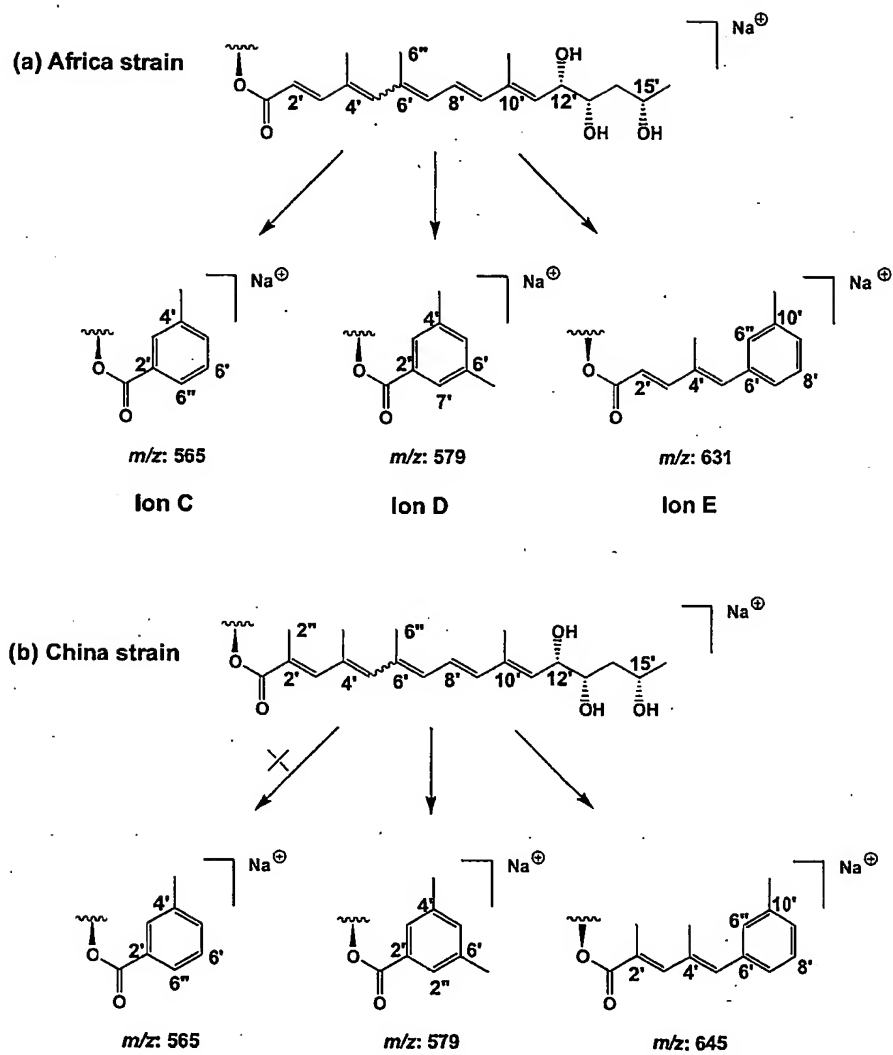


FIGURE 33



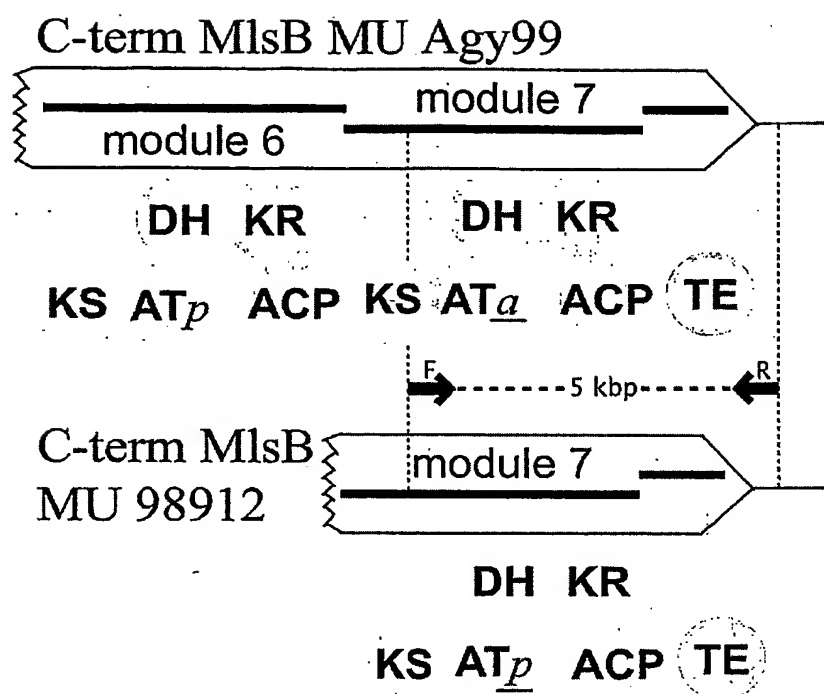


FIGURE 34

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Agy99 - AT6 PHRATITTSIEHHSENNHDTTDALAALHALANNGTHPLLSRGLLTPOGPGKTVFVFPQG
98912 - AT7 PHRATITTSIEHHSENNHDTTDALAALHALANNGTHPLLSRGLLTPOGPGKTVFVFPQG
Agy99 - AT7 PHRATITTSIEHHSENNHDTTDALAALHALANNGTHPLLSRGLLTPOGPGKTVFVFPQG
*****

Agy99 - AT6 SQYPGMGADLYRQFFVFAHALDACDAALQPFTGWSVLAVLHDE--PEAPSLERNDVVP
98912 - AT7 SQYPGMGADLYRQFFVFAHALDACDAALQPFTGWSVLAVLHDE--PEAPSLERNDVVP
Agy99 - AT7 SQYPGMGADLYRQFFVFAHALDEVAALNPHLDVALLEVMSQODTAMAQLLDQTFYQIP
*****

Agy99 - AT6 VLFSVMVSLAALWRWAGITPDAVIGHSQGEIAAAHVAGALTLPAAAVALRSRVLTDLA
98912 - AT7 VLFSVMVSLAALWRWAGITPDAVIGHSQGEIAAAHVAGALTLPAAAVALRSRVLTDLA
Agy99 - AT7 ALFALGTALHRLFTHAGIHPDYLIHSGIGELTAAYAAGVLSLODAATLVTSRGRMQSCT
*****

Agy99 - AT6 GAGAMASVLSPEEPLTQLLARWDGKITVAAVNGPASAVVSGDTTATELLITCEHENIDA
98912 - AT7 GAGAMASVLSPEEPLTQLLARWDGKITVAAVNGPASAVVSGDTTATELLITCEHENIDA
Agy99 - AT7 PGGTMLALQASEAEVQPLLBGLDHAVSIAAINGATSIVLSGDEDSLEQIGEHFITQDRRT
*****

Agy99 - AT6 RAIPVLYPSHSPYMEHIRHQFLDELPELTTPRPSTIAMYSTVDGEPHDTAYDTTMTADYW
98912 - AT7 RAIPVLYPSHSPYMEHIRHQFLDELPELTTPRPSTIAMYSTVDGEPHDTAYDTTMTADYW
Agy99 - AT7 TRLQVSHAFHSPHMDPILEQFRQIAAQLTFSAPTLPLSNLTG--QIARHDQLASPDYW
*****

Agy99 - AT6 YRNIRNTVRFHDTVAALLGAGEQVFLELSFHPVLTQAITDTVEQAGGGGAAPALRKDRP
98912 - AT7 YRNIRNTVRFHDTVAALLGAGEQVFLELSFHPVLTQAITDTVEQAGGGGAAPALRKDRP
Agy99 - AT7 TQQLRNTVRFHDTVAALLGAGEQVFLELSFHPVLTQAITDTVEQAGGGGAAPALRKDRP
*****

Agy99 - AT6 DAVAFAAALGQLHCHGISPSWNVLYCQARPLTLPTYAFQHORYWLLPTAGDFSGANTHAM
98912 - AT7 DAVAFAAALGQLHCHGISPSWNVLYCQARPLTLPTYAFQHORYWLLPTAGDFSGANTHAM
Agy99 - AT7 DAVAFAAALGQLHCHGISPSWNVLYCQARPLTLPTYAFQHORYWLLPTAGDFSGANTHAM
*****

```

FIGURE 35

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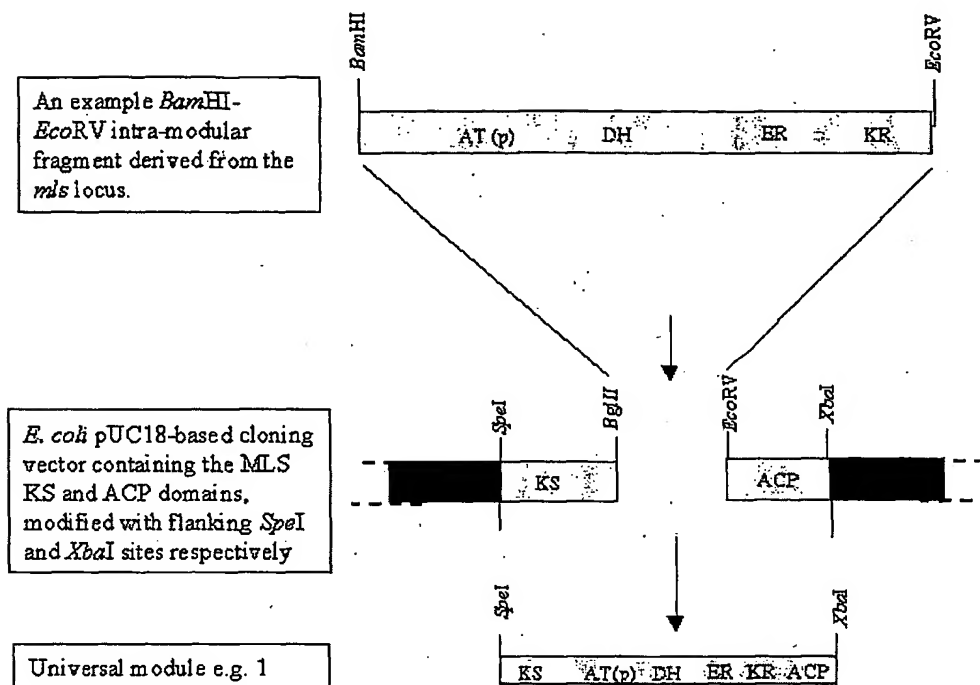


FIGURE 36

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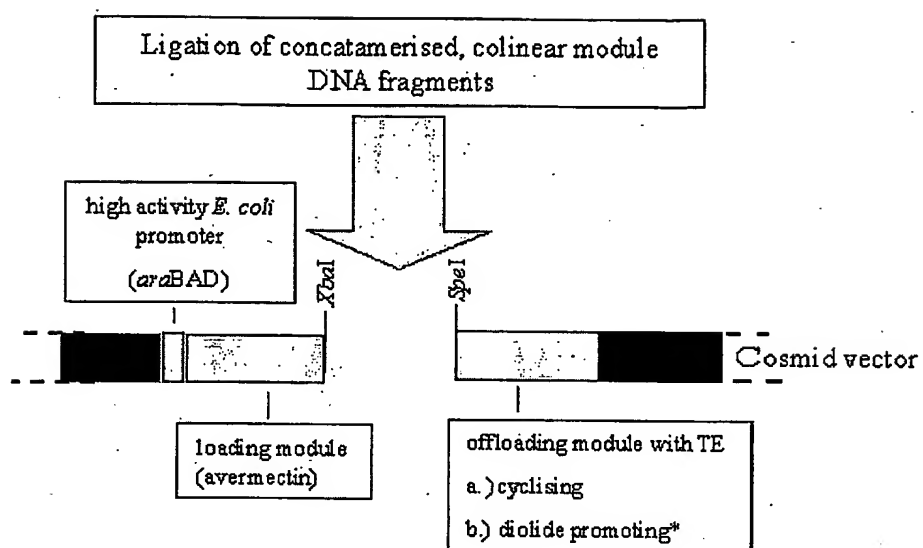


FIGURE 37

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